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THE AMERICAN FARMER.

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Vol. LXXXIII. New Series.—No. 15.

PROF. ROBERT HAY.

The Geologist of the Kansas State Board of Agriculture.

ROBERT HAY was born at Ashton-under-Lyne, in the County of Lancaster, England, in 1835. He was the youngest of eight children, and came to this country with his widowed mother in 1849. Others of the family had preceded them, but in 1850 he returned with his mother to England, her health having completely broken down. She died in 1853. To her encouragement he owed the first development of his literary tastes and scientific proclivities. In the years that followed he became a teacher, being trained at the celebrated Normal College of the undenominational British and Foreign School Society, Borough Roads, London. He passed the Government examinations, and besides obtaining a certificate, he obtained the Queen's prize for drawing. From 1857 to 1860, inclusive, he was head master of the British School at Oswestry, Shropshire. Here, for the sake of obtaining outdoor exercise, he took up the study of geology. This was the region made classic by the labors of Murchison, Sedgwick, and others. Only a few miles from his schoolroom was the typical region of Siluria. He had two friends with whom he spent Saturdays and holidays out of doors, and though they were his superiors then, it fell to his lot to discover the first fossil of the Millstone Grit *in situ*. In 1861 he joined his eldest brother in a boarding-school at his native town, but the outbreak of the American rebellion produced such distress and prostration of business that it was not possible to develop the school further, and in 1863 he left his brother and took charge of a school for the adult unemployed operatives at Wigan, in the same County. He married in April of that year, and found in his wife a helper in all his pursuits. Two years later he was again teaching a school of his own. He had never left off study. A manuscript history of England was nearly completed at that time, and he passed examinations and attended lectures at the Royal School of Mines, and at South Kensington. Huxley was the examiner in physiology, and Romsay and Ansted in geology and physical geography. In the last subject he took honors, and was the fifth on the list of several hundred. In 1868 Mr. Hay's health began to fail, and his wife also being seriously ill, in 1871, they, with three young children, came to this country. He went straight to Kansas, of which State he has been a citizen ever since. He began to teach, and his health improved for several years. He was an active member of the State Teacher's Association, which he has served as Secretary and Director. It was his motion in that association that led it to co-operate with the State Grange in influencing the Legislature to establish the County Normal Institutes. He had early formed the acquaintance and acquired the friendship of Ben. F. Mudge, the distinguished Professor of Geology at the State Agricultural College, and once filled his chair at the college in the Professor's temporary absence. From that time he ceased to protest against the word Professor as applied to himself, and by it he is now generally known in Kansas and the West—Prof. Hay. In the Kansas Normal Institutes, of which Prof. Hay conducted 14, he was enabled to diffuse some knowledge of natural science and create some enthusiasm for it. This was especially true of geology, and he led many to investigate the structure of the soils as related to the underlying rocks. After the death of Prof. Mudge, Prof. Hay gradually began to be referred to as an authority on geological matters in Kansas, and the economic side of the subject had much of his attention. At the meeting of the Kansas Academy of Science in 1883, in a Preliminary Notice of the Geology of Norton County on the 100th Meridian, he called attention to the depth of the latest tertiary formation which forms the level floor and subsoil of the great plains. A year later, in the quarterly bulletin of the State Board of Agriculture, he had short article on the water supply of western Kansas. The semi-aridity of that part of the State, and of the adjacent parts of neighboring States, caused him to give increasing attention to the underground waters of the West, which was to bear fruit later.

In the Summer of 1885 he made a reconnaissance in southwest Kansas, the results of which have been recorded in Bulletin No. 57 of the United States

Geological Survey. In it his former observations on soil and water in the Northwest were confirmed and amplified. In this he was the first to distinctly recognize that the red rock of this region was not the cretaceous Dakota sandstone of the north-central part of the State, as had been supposed from the account given by settlers. In the next year Maj. Powell, Director of the United States Geological Survey, gave Mr. Hay a season's work in southeast Kansas. One result of this was a report on the natural gas of that region, the geological horizon of which was specifically determined. Later, under the same auspices, he determined the detailed geology of the Fort Riley Military Reservation, which was extended to include one-half of Geary County, in which Prof. Hay resides.



PROF. ROBERT HAY.

When four years ago rock salt was discovered in Kansas, Prof. Hay not only described its geological and topographical position, but in an article in the Sixth Biennial Report of the State Board of Agriculture he gave the statistics of the then infant industry, and presented an array of facts showing the value of salt in agriculture. The farmers of the West not having it did not use it, and were largely ignorant of its possible applications. He has had two other papers on salt since then in the same publication. Gypsum, clays, and soils have had frequent attention from Prof. Hay, and he has been consulted frequently by private parties with regard to these and other minerals.

Artesian wells having been found in a few places, he has described them and investigated their conditions, and to his urgency is partly due that some of those in Meade County have been used for irrigation.

In April, 1890, Prof. Hay was given charge of the geological part of the artesian well investigation placed by Congress under the control of Secretary Rusk. There was only three months' time, and the semi-arid area to be examined

extended from the 97th meridian westward to the Rocky Mountains. With able and enthusiastic colleagues an enormous amount of work was done. Prof. Hay traveled over 15,000 miles, and made valuable observations from New Mexico and Texas to North Dakota and Montana. The report (Senate Ex. Doc. No. 222, 1st session, 51st Congress) has not only been utilized in the region investigated, but has been eagerly sought for and commended in foreign countries. The reviewer in an engineering magazine said that no public document in this country had ever presented the results of so much work, or contained so much valuable information, and of this verdict Prof. Hay was entitled to a full share.

In October, the same year, Congress ordered the continuance of the work, with some difference in the title. It was to be an investigation of the underflow and artesian conditions, as related to irrigation of the same region. The personnel of the investigation was nearly the same as in the shorter previous work. Richard J. Hinton had charge of the statistical department and supervision of all office work; E. S. Nettleton was Chief Engineer, and Robert Hay Chief Geologist. In the southern part of the field he had the assistance of Prof. R. T. Hill, of Texas, and in Nebraska Prof. L. E. Hicks, while Prof. Culver, of the State University of South Dakota, assisted in the north. The report of this work (which terminated by Congressional limitation Dec. 31, 1891) is not yet published, though it is nearly through the printer's hands. It is a larger report than the previous one, in three parts, one under each divisional chief. Prof. Hay says that he and his colleagues have given a definition of the previously vague term underflow, and have generally defined the phreatic waters of the plains in a way that will prove of great value in the settlement of that region. The report may be ready for distribution any day. Our readers should get it from their Congressmen.

In the last month of this work, while the Professor was in Washington giving the final touches to his report, he was summoned home by the serious sickness of his wife. When he arrived at home she was dead. One of the last persons he spoke to in Washington was Senator Plumb, who had taken great interest in his work. One week later the Senator was dead. In another week an old friend and companion in the Kansas Academy of Science, Joseph Savage, of Lawrence, was dead. The Professor has been sick himself since, but is now at work again to make known more of the mineral resources of the State in which he has resided for over 20 years.

Prof. Hay has for many years been associated with the eminent Paleontologist, Orestes St. John, as Geologist to the Kansas State Board of Agriculture, and many of his practical papers have appeared in the bulletins and well-known biennial reports of that board. He has also for several years acted as the Geological Committee of the State Horticultural Society, and has contributed to its reports on soils and irrigation. He is a member of the American Association for the Advancement of Science; also of the National Geographical Society, and a fellow (one of the original hundred) of the Geological Society of America. He is an ex-President of the Kansas Academy of Science.

Those who read the writings of Prof. Hay generally agree that they are full of information, and—what is of importance to the general public—though scientific in form and subject, they are singularly free from technical terms, and are easily understood. For the rest, the Professor has realized how vast are the resources of the trans-Mississippi empire, and is an enthusiast for the West.

EUROPEAN AGRICULTURE.

The Condition of the Agricultural Industry Across the Water—Farmers' Syndicates and Banks—Intensive Culture—Green Manuring—Beet Sugar, Dairy, and Meat Products.

Special Correspondence THE AMERICAN FARMER.

PARIS, July 2, 1892.

EDITOR AMERICAN FARMER: What most characterizes Continental agriculture is the spirit of investigation that is abroad to test and weigh new methods and discoveries, and to be doubting and yielding on ancient processes and the old order of things. There is a fermentation of ideas and an upheaval of practices. This new departure trends for a perfect working of the soil and its maintenance in a state of remunerative fertility, either by barnyard and commercial manures, or the plowing under of green crops. Next, to adapt culture to climate necessities, to secure the best and most appropriate seeds, and to work their base lines on the most economic principles. Intimately connected with all is the tendency toward the co-operative or associate movement, but at present limited to production, and this latter's progress is allied with capital. In France the co-operative plan is better known as agricultural syndicates.

There are over 380 of these syndicates legally recognized in France, and their aim is primarily to purchase seeds, fertilizers, feeding stuffs, stock, and implements from first hands. When it is remembered that intermediaries levy about 30 per cent. on the farmers' purchases and sales, the abolition of such profit suckers becomes almost a necessity. Many of the syndicates group their orders so as to ensure still better terms from manufacturers. Accounts are settled by the part cash and part bill system. There are no cheap banking facilities for agriculturists in France, such as exist in Germany and Italy, where the farmer is dealt with as if occupied in commerce—conceded discount at low rates and for long dates by renewable bills. The Bank of France will not look at any bills from farmers. Hence, the Government has come to the aid of the agricultural community by offering to back up the founding of a vast rural bank, with a commencing annual subsidy of \$40,000 to guarantee interest on shares and minimize loan risks.

Nothing but intensive culture can enable French cultivators to compete with the food out-puts of the United States, Canada, South America, Australia, etc. To

meet low prices in the case of grain, for example, French farmers must increase the acreage yield; the country could very well augment the wheat crop from 11 and 16 to 25 bushels per acre. The railway transport rates are still too high, and the land bears too heavy a share of the burden of general taxation. The immigration of farm laborers to the manufacturing towns compels agriculturists to employ machinery, etc., to replace the shrinking hand labor. Next comes the question of fertilizers, aiming to supply the soil with its requisite provision of nitrogen, phosphoric acid, and potash in an assimilable state and as inexpensively as possible. Nitrate of soda, phosphates proper, and Thomas's slag are associated either with special barnyard or green manurings, or simply as a top-dressing after a strong-manured crop.

The plowing under of a leguminous crop, either in late Autumn or early Spring, as manure is coming into general favor. Red and crimson clovers, vetches, lupin, lucerne, horse beans, cow peas, etc., are the plants preferred, because leguminous crops have the power of utilizing by their roots, not their leaves, the nitrogen of the air. Clover is either sown specially in Spring, one cutting taken, and then plowed under, or it is sown with a cereal and broken up in Autumn. In respect to the other plants, they mostly are sown after a switch of the harrow has been given to the stubble. Maize and white mustard are also crops patronized for covering under.

Respecting vineyards, many that were destroyed by the bug have been replanted with American stocks, and now yield, if not a fine, at least a profitable selling wine. The phylloxera scare has compelled vignerons to remember that the vine exacts care; it is not a voracious feeder, as Prof. Muntz has shown. As compared with wheat, it carries off only nominally the chief elements of fertility. The latter concentrate in the leaves and vines, and when they are restituted to the soil the loss of plant food is insignificant. The leaves ought to be buried; the twigs are burned; a little farmyard manure applied in Autumn, or of nitrate in Spring, is all the vine requires.

Potato culture is progressing with great strides in France, as in Germany, for the industrial production of alcohol. The Richter Imperator is the variety preferred; it yields very heavy crops in well-prepared soils in good heart. The Germans still take the lead in this form of potato culture, and the tubers are also employed for cattle and hog feeding. For the latter the tubers are boiled. For calf feeding—that is, the production of veal—the boiled tubers are mashed, and when mixed with the milk the floating skins are removed and placed in the piggrough. The calf's fourth stomach is not then prepared for ruminating work; so it is best to guard against accident.

Germany, Austria, Russia, and Holland run France closely in the culture of sugar beet. The percentage of sugar in the juice, as extracted by the system known as "Diffusion," where the slices of the root undergo 10 or 12 different and regulated steepings in slightly sweetened solutions, varies from 8 to 16 per cent. Germany has the richest roots, because more attention is paid to the selection of seed and culture. Again, she utilizes very largely the machine-dried pulp for stock feed, mixed with cotton meal, bran, etc. The other countries are still behind in this food supply. It silos well, and old sugar hogsheads preserve the stuff just as fresh and appetizing as cement trenches.

Respecting ensilage, it has now become an established institution, an indispensable adjunct for Autumn or till Spring feeding. Maize, variety horse tooth, is the green stuff preferred. Some pass it through the chaffer before trenching it; others deposit it in green sheaves in the silo, or the stack, or in wooden cases erected on the surface, merely untying the binding. I have been told of a farmer who supplies a town dairy with the chopped maize preserved in hogsheads. Silo food for exportation is a novelty.

The dairy industry is brisk; what between extractors and separators butter makers have only the difficulty of choosing. The growing demand in populous centers for the consumption of fresh milk is forcing co-operative dairies deeper and deeper into the rural districts. There are no differences now about the purchasing of milk for collective working up, since the richness of any milk forwarded can be exactly measured in presence of the owners; so complaints have died out. It is said that in Chicago a live pig can be placed in a machine and duly turned out into sausages, hams, and fitches; in the case of commercial dairies, the milk once vatted can be skimmed, churned, and the butter kneaded and made into rolls, or packed into firkins, without being once touched by the hand.

Beef-making is also becoming a remunerative branch of agricultural manufactures. The Charslais and the Durham races occupy the front place, but they exact much attention and judicious feeding. The Hereford breed is now the admired of all beef-growers; the animal is hardy, not delicate about its feed, puts up flesh rapidly, and the meat is juicy, well-flavored, and appetizingly grained.

Relative to sheep, farmers are more and more leaning to the production of precocious mutton, and crosses of Dishley-Southdown Merino are patronized—meat, not wool. The latter is left to Australia, the Cape, Argentina, and Saxony. As for hogs, France raises nearly the number necessary for home consumption, and in general, prefers her old Normandy breed, limiting the sow to two litters a year, and high feeding. I fear something has gone wrong with the Percheron horse industry; the animals do not change hands so freely, and buyers are more particular. The race is suspected to be losing in fire, energy, and sustained work. Perhaps not sufficient attention is paid to brood mares—an old fault—or the Boulonnais horse is too frequent a visitor in the Perche Valley.—LUTECE.

Every year rivers and harbors swallow our money by the millions, yet the common roads to feed this commerce get not a cent.—*Good Roads.*

SUGAR-BEET CULTURE.

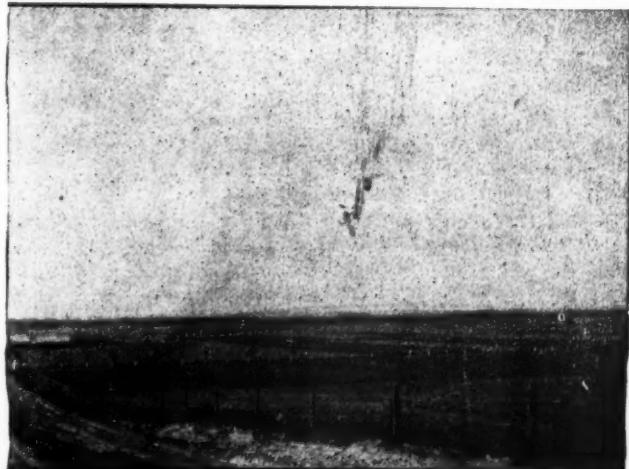
A Review of the First Annual Report of the Schuyler Station.

BY WALTER MAXWELL, U. S. DEPARTMENT OF AGRICULTURE.

THE SUGAR-BEET experiment station of the U. S. Department of Agriculture was established last year, and is located in the State of Nebraska, near the town of Schuyler, in the Platte Valley, and on the Union Pacific Railway. The purpose of establishing a sugar-beet experiment station, and the reasons for selecting Nebraska as the seat of the same, are briefly and clearly set forth by Prof. H. W. Wiley in his introduction to the report of the station of the past year, which is found in Bulletin 33, of the Department of Agriculture, Division of Chemistry, on sugar-beet experiment work. Prof. Wiley says:

Impressed with the necessity of securing in this country experimental tests of the most scientific methods of cultivating sugar beets and producing seed therefrom, I was directed by the Secretary of Agriculture, in Autumn of 1890, to visit Nebraska and other States with the intention of selecting a site for the establishment of such an experimental station. The reasons which led to the selection of Nebraska as the State in which this station should be established were the facts that already a beet-sugar factory had been erected in that State, and others were in process of erection, and that in its soil and climate it seemed to present a favorable locality in which to try the experiments, which, when finished, might prove of the greatest advantage to all parts of the country. The location of the station on the Pacific Coast would have placed it too far away to secure the personal control on the part of the Department, which seemed to be necessary to its success; while had it been established farther east and north, it would not have so well represented all the points of soil and climate of the northern central portion of the country, in which the farmers seem to be most interested in beet-culture.

The experiment station is comprised of 30 acres, and forms a part of a large and valuable ranch. It is admirably located, being situated at a point where one small valley (Shell Creek) opens out into the broad expanse of the great Platte River plain. The station farm is situated behind the terminating ridge of hills which divides those valleys, and is protected from the cold winds coming down from the north, and lies amply exposed to the warm influences of the south. Being a part of the actual Platte Valley, and, until just recently, the rough, native prairie, the physical features of the locality are very uniform, and the ground almost free from any undulations. The farm is almost a dead level.



General View of the Station and Platte Valley from a Distance.

The soil of the station farm, to quote from the recent report of the assistant in charge of the experimental work, "appears to be uniform with the prairie soil of the Platte Valley. It is a dark loam to a depth of two and a half feet, resting upon a mixture, one and a half feet thick, of clay and sand, and gradually going down to a pure sand at a depth of five feet, which meets the normal water level at a distance from the surface of eight and a half feet. It is a loose, easy-working soil, highly sensitive to variations in the temperature of the air, but very resistant of the action of the extremes of moisture and drouth."

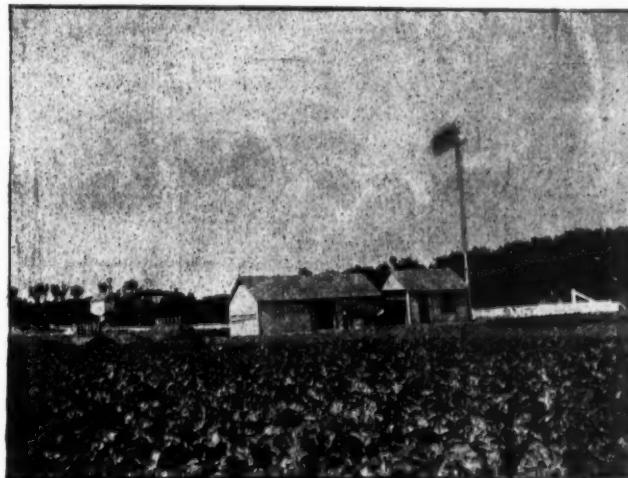
It is a magnificent soil! Like to the whole breadth of the soils of the upper bottoms of the Platte Valley, and it is not only by the dark, rich appearance, and its free working character, that its value is estimated. A chemical analysis, which was made by the experiment station, of the subsoil, as well as the soil of the surface, shows that the elements of plant food are contained in abundance, and for the production of some crops a superabundance of certain elements necessary to plant growth is present.

The physical properties of the soil are likewise shown to be of a very particular character. In the report of the assistant in charge of the Government station we find that comparative tests were made of the experiment farm soils with the soils of the experiment stations of Maryland and Indiana. It is known that a special characteristic of the climates of the western and northwestern regions of the United States is the strong and almost constant winds which prevail. If such high, hot winds as blow up from the south, driving across Kansas and Nebraska, prevailed for any length of time upon the soils of the Eastern States, the ground would be utterly dried out, and no crop could live. Such observations led to the tests of which we have spoken, and their particular end was to determine the relative power of the Nebraska soil of absorbing and retaining moisture; or, in other words, the ability of the soil to resist the bad effects of the extremes of drouth and moisture, for it must be understood that those extremes obtain in a high degree.

The results of the tests showed the capillary power, and the power of absorbing and retaining moisture of the sugar-beet experiment station soil, in comparison with the soils of Indiana and Maryland, to be as follows:

Soils.	Capillary and absorptive power.	Retentive power in the shade.	Retentive power in normal exposure.
Nebraska soil.....	100.0	100.0	100.0
Indiana soil.....	82.7	84.2	82.0
Maryland soil.....	78.7	64.8	39.0

We see in the first place the great absorptive power of the Nebraska soil, its capability of drawing up moisture from the deep subsoil to the surface, and likewise



View of Laboratory, Barn, and Silos.

of taking up moisture in the form of rain or dews. The moisture taken up by that soil is held with a great tenacity, withstanding not only the heat but also the drying action of the high, hot winds; or, as the station report observes, "the data set forth in the table illustrate the striking adaptability of the Nebraska soils to the Nebraska climate. They show the peculiar capability of those soils to withstand the usually bad effects of an excess of either rain or drouth. They further indicate that, should the strong winds exercise an influence disturbing to the balance of the other climatic conditions, temperature and rainfall, that influence appears to be effectually neutralized by the signal properties of the soil."

The chief purposes of the sugar-beet experiment station are to grow beets from the seed of the old and standard varieties which have become established in the beet-growing countries of Europe, and to determine whether those varieties will maintain their high standard of excellence in the soils and climate of this country. If it should be found that a deterioration in the sugar value of those varieties takes place when grown under the conditions of this country, it will then be attempted to produce new kinds by a rational crossing of the European varieties, bringing together those types the special characteristics of which promise a fruitful blend. Thus, not only does the Department of Agriculture comprehend in the scope of its work a thorough testing of the respective European varieties for immediate manufacturing uses, but it is likewise considering the initiation of a broad and rational system of seed production—a system which, founded as it must be upon the accumulated experience and merit of the methods of the old countries, will embody all essential modifications requisite to success under our new conditions.

In view of those purposes of the Department of Agriculture, it becomes extremely interesting to observe the character of the work and the measure of success attending the experiments in the past year. In looking over the cultural data contained in the report we find that the several periods of the growing season were marked by every feature of success. The season was not normal in respect

to the rainfall and other climatic factors, the period of planting the seed being extremely dry, and the following period of the beets' development, embracing the month of June, was signalized by wholly abnormal deluges of rain. Notwithstanding those unfavorable climatic conditions, the seed germinated fairly satisfactorily, the young beets grew with an almost phenomenal vigor and speed, and at the end of August as promising a looking crop was in view as it is possible to raise in any of the beet regions with which we are acquainted. It was a regular full crop, and had the appearance of a high sugar-yielding value.

The appearance, however, is uncertain. The sugar content of a beet or a crop of beets is not assumed by the luxuriant aspect of the foliage, or the development of the roots. It is necessary to submit each beet, or a number sufficient to be accepted as a fair sample of the whole, to a crucial chemical test, by which the actual sugar content is determined.

An excellent laboratory has been erected upon the experiment station, which is equipped with every scientific instrument and appliance necessary to the work, and when the period of maturity is approaching the work of analysis commences. By a constant chemical review and control of the condition of the crop the sugar content of each of the varieties is observed, and the period determined when each variety has attained its maximum value.



Horse-hoeing Beets.

The varieties of beets experimented with upon the station farm last year were the "Improved Vilmorin," the "Lemaire," and the "Desprez," of the French types; and the "Kleinwanzleben Dippe," the "Kleinwanzleben Elite," and the "Knauer," of the German kinds. Although the varieties are designated, respectively, French or German, they are not exclusively such. The French varieties have been, and are still, used in Germany for the modification of German kinds, and the same is the way in France, the French growers using certain German types in order to bring their own varieties more into line with existing requirements.

Before giving the data which illustrate the results obtained by the station experiments it must be remarked that, in addition to the chemical testing of the beets to determine the sugar content, the crop is very carefully weighed, in order that, by knowing the weight of beets per acre and the per cent. content of sugar in the beets, the actual yield of sugar per acre may be determined. The care with which the weight of the crop is ascertained may be better understood by the following description, given in the report of the assistant in charge:

The work of determining the weight of beets per acre was done by selecting a given number of square rods, according to the size of the whole plat, and ascertaining the weight of each square rod from the several parts of the plat and taking the mean as representing the 160th part of an acre. The details of selecting the square rods and the weighing of the beets were as follows: A wooden square made of light wood was dropped down upon the place selected. The frame inclosed exactly one square rod. Every beet was taken up inside the square, and none outside, so that each measurement was essentially precise. The beets were thoroughly cleaned; the tops, including the neck, were cut off with any coarse lateral roots and weighed immediately. As already said, the mean of the square rods was taken as the acre unit.

In order to make the mode of ascertaining the content of sugar in beets as plain to the reader as the manner of determining the weight of beets per acre, we shall give a further paragraph from the same report:

The method of sampling a plat for determining the per cent. of sucrose (sugar) in the juice (or in the beet) and the yield of sugar per acre was as follows: Where the number of rows of beets to the plat was less than 20 one average row was selected, and where the number exceeded 20 rows to the plat two average rows were selected. The selected rows were taken up in the following order: Either 100 or 200 beets, as decided upon, were selected in twenties from either five or 10 different places in the rows, the places being so far apart as to give an actual average of the beets in the rows. Those beets were taken immediately to the laboratory and analyzed. Each one of those 200 beets was analyzed individually, in order to afford not only an average, but also to observe the scale of variation in weight and sugar

content of the single beets. In the next place, the whole of the beets remaining in the selected rows were taken up and brought direct to the laboratory and analyzed in tens; i. e., the juice of ten beets, already weighed and ground up, was expressed and one polariscope reading made. From the individual beets the weight and sugar content of each one were found; and from the beets analyzed in tens the average weight, sugar content, and purity of the juice were obtained. The number of beets analyzed daily was from 100 upwards, even to 900 daily, where the work was done in tens.

The following table will show the actual results obtained from the several varieties, expressed by the weight of beets and yield of sugar per acre, and the so-called purity of the juices:

Variety.	Weight of beets per acre.	Sugar per acre.	Purity of the juices.
Kleinwanzlebener.....	23.55	6,521	83.3 per cent.
Vilmorin.....	23.45	6,407	85.4 "
Desprez.....	23.85	6,450	86.2 "
Lemaire.....	20.94	5,698	86.0 "
Knauer.....	19.49	5,643	86.4 "
Elite.....	19.33	5,564	84.6 "

In order that the value of the above table may be estimated, it will be of interest and assistance that the data of results obtained in the same work by some other experiment station be brought into comparison. From the report we are able to quote such a comparison. The Chapelle Agricultural and Beet Experiment Station, located in the north of France, was selected. As the report states, "the Chapelle Agricultural Experiment Station, France, affords the data for such a comparison, published in the official bulletins of this year." The data of the French station represent the mean condition and results of several experimental plats at the several periods stated, and the statement of the United States Department of Agriculture station gives the mean of all the varieties and plats at almost corresponding periods in the season at Schuyler:

Stations.	Date.	Weight of beets per acre.	Sugar per acre.
Chapelle (France).....	Sept. 9	Tons. 11.35	Pounds. 3,014
".....	Oct. 7	14.86	4,182
".....	Nov. 18	16.30	4,919
Schuyler (Nebraska).....	Sept. 15	21.77	5,700
".....	Oct. 15	21.77	6,000
".....	Nov. 2	21.77	5,398

In the first place, there is the gratifying observation that the results obtained upon the Schuyler Station are superior to comparative results obtained in France,



Hand-hoeing Seed Beets.

the oldest beet-growing country in the world. The tables, however, exhibit certain very notable facts which we must not fail to appreciate. It is seen that, although the yield of sugar increased somewhat after Sept. 15 up to Oct. 15 upon the Schuyler Station, the weight of beets per acre had reached its maximum on Sept. 15. If we note the data relating to the French station, we see that the crop continued increasing in weight up to Nov. 18, at which date the temperature in Nebraska was already below zero. Also, the sugar content of the Chapelle beets keep gradually increasing almost up to December. As the report states, "a comparison of the data given of the two stations suggests the dissimilar climatic conditions attending the maturing season in the respective countries. In France the beets mature slowly and late in the Fall. In Nebraska the season is early, prompt, and soon over."

It will be of special interest to quote one more table of results from the

station report showing the different yields of beets per acre where the rows are placed at different distances from each other; or, in other words, where more or fewer beets are planted to the acre. In the example to be given six plats were planted in rows differing in distance from 12 inches up to 22 inches, the distance between the plants in the row being constant:

Plat No.	Distance in inches between rows.	No. of beets to the acre.	Pounds per square rod.	Tons per acre.
1.....	12	89,137	300	24.0
2.....	14	74,674	273	20.2
3.....	16	65,340	219	17.5
4.....	18	58,000	198	15.8
5.....	20	52,272	190	15.4
6.....	22	47,620	175.5	14.0

The table speaks for itself, showing the striking effect of the number of beets per acre, planted according to the method followed in the given example, upon the yield or weight of beets per acre. These are data of the first value to beet growers.

It would carry us beyond the space permitted to this article to give in detail the further interesting experimental results which are furnished by the report of the sugar-beet station. We will thus confine ourselves to certain quotations from the epitomized review of the same, which is found at the end of the report:

The cultural season was marked by the widest extremes of climatic conditions. The planting season was a continuance of drouth, lasting from April 20 to June 2. At the end of the dry period a succession of weeks of rain followed, which were abnormal when compared with the usual precipitation for the months of June and July. The abnormal conditions accompanied the development of the season to its end. The steady and continuous heat common to the months of July and August was, in the most part, postponed to the middle of September, and the extreme heat of the latter month was followed again by rains, which amounted to more than twice the normal precipitation for that period. The results of the work of this season have been achieved under the influence of climatic conditions unusually unfavorable.

The general results of the analytical season are found to be satisfactory both in respect of the weight of beets and yield of sugar per acre. In such respect the results of the Schuyler Station compare satisfactorily with the work of corresponding stations in Europe.

The observations made upon the results of the six varieties used in the experimental work of the station have resolved those varieties into two classes, in respect of the money value per acre of their products, viz, the first class including the "Kleinwanzlebener," the "Vilmorin," and the "Desprez," whose values are uniform. The "Lemaire," "Elite," and "Knauer" have also an approximately equal value, which, however, is much below that of the three former varieties.



Interior View of Laboratory.

The experiments conducted with the view of observing the results of early and late planting indicated that early planting may be expected to give the highest money value per acre.

The fertilizer experiments indicate that the soil of the station farm contains all the constituents of plant food in abundance, and that artificial aid cannot be given to the growing crop with any apparent advantage.

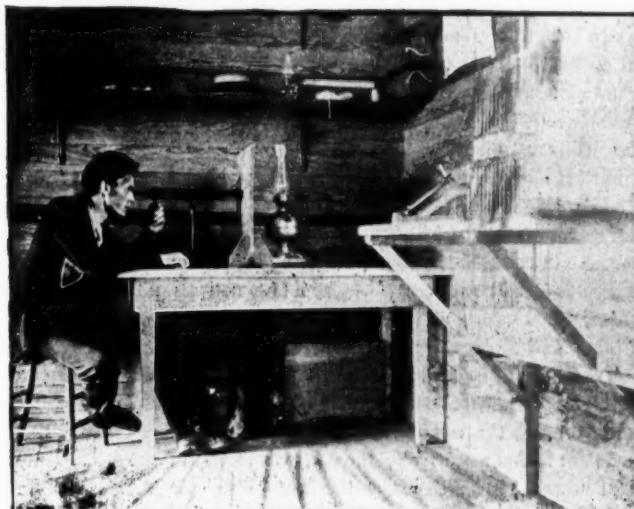
In respect of distances that the beets should be placed from each other, or the number of plants given to an acre, the experiments on the No. 1 series of small plats have shown conclusively that the money value of the crop was greatest where the greatest number of beets were placed upon the acre.

The means of analysis, indicating the condition of the beets at the periods when the tests were made, show that the crop, where the beets were planted early, had reached a high condition in respect of the weight of beets and the sugar content of the juices on Sept. 15. Further, that certain varieties had reached a maximum value by Sept. 25, and that all the varieties were at their best by Oct. 15, and after that date the content of sugar began to fall away. These observations indicate the time when, in a normal season, the harvesting and handling of the beets by the factories should commence in that part of Nebraska. The past season has been an abnormal and late one, and it is apparent that with a moderately early planting season (April 20 to May 1) and proper cultivation a crop should be ready for the factory commencing Sept. 1. The period of maturity depends upon the beet as well as

the time of planting and cultivation, and in such respect it is indicated that if the three varieties are used which have been found to be the best this year, it would be advisable to plant them in the following order: "Vilmorin," "Kleinwanzlebener," "Desprez," and they will mature most advantageously in that order for the factory. In view of the early date in the season that the factories may have to suspend operations on account of frost, an "early season" is of the greatest importance. Commencing Sept. 1, a three months' factory season is almost assured, and that would enable a factory with a capacity of 300 tons per day to work up about 30,000 tons of beets by Dec. 1, or the product of 3,000 acres, at 10 tons per acre.

The current year promises to be not less satisfactory than the last in the results which may be expected from the experimental work of the station. At the present time the aspect of the farm is highly pleasing. The plats planted with beets appear excellent! The beets are well advanced, and of a most luxuriant growth. The mother beets, producing seed, are regular, healthy, and prolific, and the other, rotatory crops of Winter wheat, oats, tobacco, etc., give to the field a character of richness and abundance.

As Prof. Wiley has said, "the work which is carried on at Schuyler must not be taken to represent the interests of Nebraska alone. Our work is to be taken for the advancement of the beet-sugar industry in general." And the sugar-beet experiment station is already beginning to realize the purpose for which it was established. It is placing the subject of beet-sugar production before the country.



Observing the Sugar Content of the Beets With the Polariscope.

The agricultural communities in many of the States are following the investigations conducted by the Department of Agriculture, and capital is merely waiting for the indorsement of experimental data and authority to enter into the work and to develop one of the greatest industries and one which is already demanded by the capabilities and requirements of our country. It will not be the least amongst the triumphs of the Department of Agriculture, nor the least of the many satisfactions of the present Honorable Secretary of that Department, to record that such an industry has been introduced and built up—an industry bringing aid to the tillers of the soil and advantage to every class in the land.

NOTE.—The photographic views were taken by Miss Samuels, Schuyler, Neb.

Amateur Herbariums.

Now is the time when those who are collecting flowers for a herbarium will want to know the best way of preparing them in order to have the specimens perfect. Newspapers are perhaps the best of anything for pressing. Cut them in sheets of uniform size; then have flat boards about two feet long and perhaps half an inch thick; upon these boards place several thicknesses of newspapers; lay plants flat upon these, taking care that every leaf is perfectly unrolled and placed in a natural position. Over these put several thicknesses of newspapers, and then lay the boards upon them and place a heavy weight upon the whole, making sure that the weight is equal over the whole pile. Each day until the juices are exhausted they should be changed to clean and dry the newspapers. It is an object to dry them as soon as possible, because the color is best retained. Of course, there may be a more scientific way of pressing, but the collector can always be sure of success by this simple method, and it is of practical use away from home.

The herbarium should have its pages of uniform size and quality. Go to a printing office and get white or manilla paper in sheets, say, 17 by 12 inches. Place one or more specimens on each page, fastening them by placing short, narrow gum strips of paper over the stem and branches. It may sometimes be necessary to use a needle and double thread, tying it close on the under side. The botanical name of the plant, its genus and species, with the common name of the flower, and any other bits of information desired to be preserved, should be written in the right-hand lower corner in ink. If the color of the flower has changed in pressing, it must also be noted. Thick manilla paper covers should be used for each herbarium.

STABLE MANURE.

The Best Time to Apply It, and its Effect upon the Soil.

BY THOMAS F. HUNT.
[Professor of Agriculture Ohio State University.]

IN ORDER to judge intelligently when best to apply stable manure, we must understand both the uses of the soil and the uses of manure. It is a mistake which has frequently been made to treat soil, or manure, as though it had but one function, and to assume that if the conditions were proper for the best performance of this one function we should get the maximum crop.

It is not sufficient to give to the soil all the chemical elements which it lacks; neither is it sufficient to have the culture the best possible. We must have both these conditions and others. It is not possible to say which of the several conditions is the most important, when each is absolutely necessary. In this country, however, it seems to me that our most hopeful outlook in the improvement of our soils is in improving the physical conditions rather than in adding to the chemical constituents of the soil. Not because it is more important than the other, but because the physical conditions stand in the greatest need of improvement, and because it can be accomplished at a less expenditure for the income received. Which has been the safest investment in this country, \$5, \$10, \$15, or \$20 per acre in tile trains, or similar amounts expended for chemical fertilizers?

The uses of soils are fourfold. As it is sometimes put, the soil is a home, a warehouse, a laboratory, and a feeding machine.

Plants need a place to spread their roots and, equally, a place to spread their tops. They need to be held in position while both tops and roots are gathering food. About three-fourths of the weight of the growing plant is water. This the plant gets through the soil. Of the other one-fourth, or the dry substance, usually less than five per cent. is of the earthy material of the soil. Except to keep the plant properly irrigated, the soil plays but a subordinate part in supplying material to the plant. It is important, however, that the plant should have a home while gathering its treasures from the air.

The soil is a warehouse. Soil is mostly made of sand and clay—bricks and mortar, as it were—which the plants do not need for their growth. Among these particles of sand and clay are the substances which the plants must have, such as nitrogen, potash, phosphoric acid, and lime. As a warehouse, some soils are better than others. Some have a larger capacity than others. Some have their shelves more completely filled than others. Some are better able to stand storms than others. Those having a large proportion of sand often leak badly, and much of their most costly substance, nitrogen, is lost.

The soil is a laboratory. Most fertile soils, and many unfertile ones, have stored in them to the depth of one foot enough of the chemical elements needed by plants to supply the ordinary crops for hundreds of years. Much of this is like much of the copy sent to editors—it is unavailable. It is not in a condition for plants to use. Good soils, by the means of chemical substances and micro-organisms in it, are constantly preparing substances for the use of plants.

The soil is a feeding machine. It is a nurse. It is not enough that there should be a supply of the needed elements in an available form. Either the substances must get to the roots, or the roots must get to the substances. They must get together. These substances are conveyed in the water. Hence it is of the highest importance that the physical condition of the soil be such that the water can circulate freely and properly. It helps us to realize this to know that the plant evaporates about 300 pounds of water for each pound of dry matter which it produces.

We will now be able, I think, to understand and appreciate the uses of manure. Stable manure has at least four uses. It supplies chemical elements; it affects the physical or mechanical condition of the soil; it supplies solvent properties or substances, and it supplies micro-organisms.

If the farmer wishes to supply his soil with the largest amount of the needed elements, if he wishes to increase the stores in his warehouse to the fullest extent, he would obviously haul his manure directly from the stable to the field. More manure is carted out of the stable than is afterward hauled from the barnyard. A ton of manure from the barnyard may contain more of the needed elements than a ton from the stable. It may be more concentrated. Whether it will or not will depend upon how it has been handled. If it is properly composted, however, the loss should be principally water and carbonic acid, so that the per cent. of the needed elements would be increased. The gist of the matter is that if we were to value manure for the chemical elements that it contains, we would take

it directly from the stable, provided we had to pay a lump sum for all the stable manure during the year; but if we were to pay for it by the load, we would prefer it after it had rotted in a good compact heap.

Stable manure, however, has other uses than supplying chemical elements. The amount of nitrogen, potash, and phosphoric acid is not a true measure of the value of stable manure to the farmer. This is proven by the fact that there are some soils in which, at present, it is a waste of time to supply commercial fertilizers for corn in any form or quantity, provided they could be obtained for nothing, while stable manure is used with good results. Prof. Whitney insists, with a good deal of force, that the chief value of commercial fertilizers, even, may be in their physical effect on the soil. The physical effect of the commercial fertilizers, however, must be largely, if not entirely, due to the nitrogen, potash, phosphoric acid, and lime which they contain.

In stable manure the physical effect is largely due to the quantity and condition of the organic matter. The condition of the manure which will produce the maximum crop will vary with the soil itself. If the soil is a wet one, either from lack of drainage or excess of rainfall, long, coarse, stable manure may act favorably by facilitating the drainage. Under such conditions the manure would ferment slowly on account of an excess of water. In a sandy soil or a dry season, the long, coarse manure may make the soil too dry. Under these conditions the manure rots slowly on account of the lack of moisture.

A gentleman writing from southwestern Nebraska complains that while in the east he used to preserve every forkful of manure, and used it with marked beneficial results; that the application of stable manure on his farm in southwestern Nebraska was uniformly harmful. The explanation seems to me simple. The soil and climate were so dry that the manure did not rot readily, and hence made the already too dry soil still drier. I know of a half acre of land that has been manured with stable manure continuously for 15 years, and usually, of course, this has given considerably larger yields than corresponding areas not so fertilized. During one season, however, when there was a severe drouth, the manured half acre gave much the lowest yield.

But even in a dry soil and climate stable manure may become highly beneficial by proper application. Instead of plowing the manure under to make the soil more porous, and consequently drier, if the well-rotted manure is applied upon the surface after plowing it will act as a mulch and thus increase the soil moisture. It cannot be insisted upon too frequently that every act of tillage or fertilization depends in practice more largely upon its effect on the soil moisture than on any other factor. It takes something else beside water to make a crop, but that is the substance most likely to be deficient, and is in fact the substance we most largely control in our endeavors at soil improvement and culture.

So far as the mechanical condition is concerned, long manure acts until rotted much like sticks or stones. If, however, long manure is applied to a friable soil, and the season is neither too wet nor too dry, the conditions may be favorable to a proper fermentation, and the manure may be of marked benefit. The availability of the chemical elements of the dung and urine is not increased by rotting or fermentation. It is the bedding that needs to be rotted. It is the bedding, also, that has the largest physical effect upon the soil. It is in the fermentation of the organic matter that the humus is formed. The humus increases the water capacity of the soil.

It is evident from the above that no specific rules can be given for the application of stable manure. In general, manure should be applied in such a condition as to become readily a part of the soil. Under certain conditions of soil and climate this will result with fresh manure. Under other conditions the manure will need to be well rotted.

The act of fermenting furnishes carbonic and other acids. These acids make inert substances soluble. They make insoluble compounds available. If the fermentation is completed before the manure is applied, obviously no benefit will be derived from the evolution of carbonic acid gas. Certain liquid acids will exert a solvent action. It is evident, therefore, if we wish to get the maximum effect of the fermentation, we must apply the fresh manure and allow it to rot in the soil. If, however, we wish the maximum result for a given crop, it may be better to have the fermentation started before applying the manure. We may thus have a more active fermentation for the time being. Care must be taken that this fermentation is not too active. Trouble has been found in the use of linseed meal as a fertilizer, because the active fermentation which is generated sometimes kills the seeds.

Manure may supply micro-organisms. This is a popular phase of the manure problem just at the present time. There is a good deal written about it, but there is very little really definite knowledge about it. Certainly micro-organisms play a very important—one is tempted to say an all-important—part in the maintenance of soil fertility. The mere fact that all the fermentation that takes place in the manure and the soil is due to micro-organisms sufficiently illustrate this.

The somewhat recent discovery that the bacteria in the root-tubercles of clover and other leguminous plants in some way do convert, or assist in converting, the free and inert nitrogen of the air into available plant food, has given a fresh impetus to the discussion of the biological effect of manures. Some experiments have been made which seem to indicate that each species of leguminous plants has its peculiar root-tubercle bacterium; that the bacteria are necessarily in the soil, and that they may be supplied by proper manuring, thus increasing the desired crops and the quantity of nitrogen trapped. While there is a good deal of speculation in this, enough has been done to indicate there may be some truth in it.

Perhaps some day we may value our stable manure by the per cent. of pure

cultures of the different organisms it contains. Then what a time we will have. An analysis of stable manure will read something like this:

ANALYSIS OF CLOVER HAY MANURE.*		
	Per cent.	Value per ton.
Nitrogen.....	0.51	\$1.73
Phosphoric acid.....	0.21	.29
Potash.....	0.53	.43
Total chemical value.....		\$3.45
Pure culture red clover bacterium.....	0.083	.25
Pure culture white clover bacterium.....	0.027	.02
Pure culture alfalfa bacterium.....	0.003	.00
Total biological value.....		.07
Effect on surface tension of soil.....	2.37	.73
Effect on porosity.....	12.32	4.28
Effect on temperature.....	0.56	.22
Total physical value.....		5.33
Total value.....		\$10.85

How the poor farmer will be bewildered, knowing that it takes 15 tons of this manure per acre to make an increase of 20 bushels of corn, or of 10 bushels of wheat, the value of the whole increase being worth much less than the valuation on one ton of the manure. Not only the quantity of the manure to be applied per acre, but the condition of the manure when applied, will depend upon the crop to be raised. It may be more profitable to apply 400 tons of coarse manure on 20 acres for corn than to apply the same manure, after it has rotted down to 200 tons, on 10 acres for corn. On the other hand, 200 tons of the well-rotted manure applied to five acres for cabbage may be more profitable than 400 tons applied to 10 acres for the same crop.

There are several business considerations which affect the application of manure. Much depends upon the adjustment of the work with the other work of the farm. This will in turn depend upon the kind of farming and upon the rotation of the crops. If it is to go on to corn land, generally, it must be applied in the Spring or during the late Fall and Winter. In this case, it will be long, coarse manure. Fortunately corn thrives upon this kind of treatment. On this account corn has got the name of being a coarse feeder. It is probably due to the fact that the corn grows during a season of the year favorable to the decomposition of the coarse manure. On the other hand, if the fertilizer is to be used on wheat, it will be applied during the Summer. This, being manure left over from the Winter months, will be fairly rotted. This again is fortunate, because wheat, growing during the cooler months of the year, furnishes conditions unfavorable to the decomposition of the manure. It would largely remain as so much inert substance, and would besides exert an unfavorable influence upon the physical condition of the soil.

Much depends, also, upon the care that is given the manure. If it is sheltered and practically siloed by thorough tramping with stock, it may be used at convenience without much loss. If, however, it is "sheltered" under spoutless eaves, the quicker it is gotten into the field the better. Taking the usual condition for keeping manure, it may be laid down as a general rule that the less time that passes between the making and the using the better.

*This analysis is not intended to show the value of the fertilizer to the farmer, but indicates what the various ingredients would cost if bought separately in the retail market.

ST. MARY'S COUNTY, MD.

A Lovely Country, With Unlimited Agricultural Possibilities.

EDITOR AMERICAN FARMER: St. Mary's County, Md., is full of historic interest. The English Roman Catholic settlement, under the liberal patronage of the first Lord Baltimore, in 1634, was on the St. Charles River, at what is still known as St. Mary's. It is a most charming region that has remained uncontaminated by the spirit of progress. The people look upon the past with pride and veneration. They love the old ways, the old plantations, the old houses. The tales and traditions of the antique are rich in memories that cannot be turned into money. These descendants of the Cavaliers would rather live in the past than endure the spirit of enterprise and improvement that threatens them. Some of the old manor houses are pointed out, and to hear fond, traditional stories of the olden time makes one almost see and hear the men of 259 years ago. Some of the old estates comprise vast areas, though changes have come sadly to them all. Those that remain are sinking into decay, and cannot remain much longer in existence.

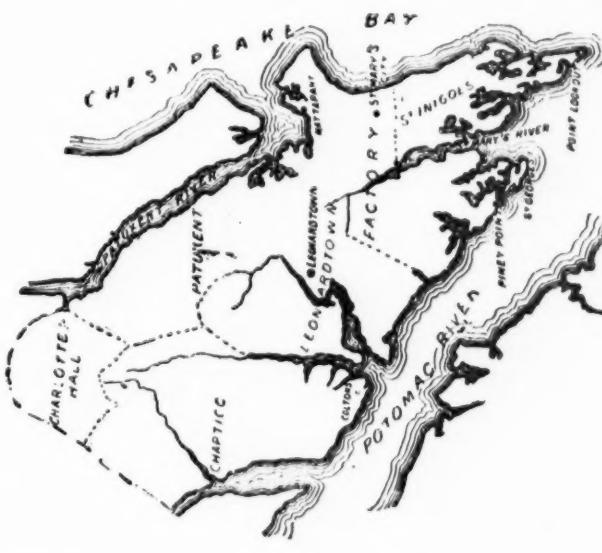
Before the war St. Mary's County was one of the most wealthy and large slave sections in Maryland. The freeing of the slaves left the planters helpless. They had not been used to work, and the older men did not learn. The younger men protested against doing what the colored people had to do, and sought professions and genteel business positions in the cities. By the freeing of the slaves the planters were left poor, and many of them have grown poorer, and their farms, too. Unfortunately, the genial climate, the sea supplies of food—oysters, fish, clams, crabs, diamond-back terrapins, and canvas-back ducks—inexhaustible resources, settle the question of living so surely and easy that habits of industry and thrift have not been cultivated.

The County is nearly an island, and no point in the area is over six miles from a deep-water shipping point. Immense wealth is stored in the waters, and in the oyster season thousands of men are employed. This fact accounts for a good deal of the lack of interest in agriculture. The soil was originally the most fertile in the State. The County is adapted to general farming. All the crops of the North grow very readily. The money crop is tobacco; wheat, oats, corn, potatoes, and truck crops are grown to perfection. Within the last few years peach

orchards have been largely planted, and many have grown wealthy by it. The shipping facilities by water to Baltimore, Washington, Norfolk, and Philadelphia are very convenient. The two first cities are distant only six and eight hours.

Two hundred years ago the growing of tobacco and corn was decided by the best agriculturists of the County as a suicidal system and should be discontinued. The results of to-day show that the decision was correct.

Their depleted lands respond readily to kindly, generous treatment. There were fields of wheat that were estimated to yield 30 bushels to the acre, on which an expenditure of \$1.50 for commercial fertilizer had been given. There were splendid clover fields that were to be plowed down for wheat. Grasses for hay were neglected entirely. Corn is said to average from 40 to 75 bushels. Tobacco, with fertilizer, gives a yield of 1,500 pounds per acre. It is believed that the character of the labor hinders the prosperity of the country. Nearly one-half of the population are colored. The moral tone of the whole population seemed to be of a high average. Of the 25 distilleries in the State, St. Mary's County has not one. Too much whisky is drunk, though the County has a high license law; the County



ST. MARY'S COUNTY, MD.

has had a Republican majority of 200 for several years. There is an air of neatness in farm buildings, and all are painted or whitewashed. Schools and churches are everywhere. Immigrants are well received kindly by everybody. Canneries are being established. Self-binders and the best agricultural implements were common. Lands, improved, \$5 to \$20 per acre; unimproved cheaper. The old pine fields so often met with in all those old States are easily cleared. The pine stumps rot out in three or four years, and never sprout. Here is a delightfully-located country, where Winter storms rarely occur and a freeze of three or four days is a terrible spell of weather. Figs are successfully grown without any more care than an apple tree. Malaria and mosquitos are not mentioned. The deep salt water modifies the Winter's cold and Summer's heat. The live-stock industry is sadly neglected. There was a candid inquiry if the foot of a cow was damaging to land? Here is a country that would "bud and blossom as the rose" under the hand of progressive, enterprising men. The curse of slavery and tobacco upon agriculture has done it all.—EASTERN SHORE

Earache.

At the first symptoms of earache, lie on the bed with the painful ear uppermost. Fold a thick towel and tuck it round the neck; then with a teaspoonful fill the ear with warm water. Continue this for 15 or 20 minutes. The water fills the orifice of the ear but overflows on the towel. Afterward turn your head, let the water run out, and plug the ear with warm glycerine on raw cotton. Do this for an hour or two and relief will be obtained. It is an invariable cure, and will certainly prevent acute inflammation. Let the water be as warm as possible, but by no means scalding hot.

A Great Artesian Well.

The Dakotas abound in artesian wells. In a good many localities cultivation of the soil could not be kept up without the aid of these useful wells. The greatest artesian well in the world has been recently struck in South Dakota. It is 960 feet deep. The water pressure is 225 pounds per square inch, and its flow is from 8,000 to 10,000 gallons per minute.

In Bielefeld, Germany, there is a farm of 400 acres under cultivation, the operators being men and women who are or have been sufferers from epilepsy. All classes of farm work are attended to by these people, and it has been found that the frequency of attacks of fits of epilepsy has been greatly lessened by the effects of the work. There were at the end of 1891 1,100 patients at this institution.

GOOD ROADS.

The Practical Farmers of the Deer Creek Club Discuss How they Can be Made and Maintained.

THE subject of good roads was the main matter for consideration at a meeting of the Deer Creek Farmers' Club, held at the farm of Mr. Wm. B. Hopkins, in Harford County, Md.

A committee was appointed to make the customary inspection of the farm, buildings, and stock, and its report complimented the owner upon possessing one of the finest farms in the County, with everything around him in the best of order, and on an extensive scale. The barn is the largest in the County, with accommodations for 50 head of cattle, besides horses, and with ample shedding in a warm and sheltered barnyard. Thirty-five good stock cattle were on hand, some fine cows, and several colts, including a promising one by Almont Chief. The farm implements were pronounced in good condition, and the grass and wheat looked well.

A communication was read from Col. A. A. Pope, of Boston, recommending that steps be taken to secure a separate building at the World's Fair for a comprehensive exhibit of road making and road-making machinery, and pointing out that for a visitor to examine everything that will be shown in this line five great buildings, covering 79 acres of space, must be visited. The suggestion of the writer was approved by the club, the members of which then took up the general subject of roads and road improvements.

Wm. B. Hopkins deprecated the custom of spending all the appropriations upon the roads at the time of first mending them, urging that the Sub-supervisors should retain enough money to pay for mending holes which may be made in the road in the course of the whole year. A portion, too, of the road money should be spent every year in macadamizing places that otherwise come to be impassable. As General Supervisors only the best men should be appointed by the Commissioners, and the road mending given, as far as possible, to men who are directly interested in the roads they mend.

Jas. W. Hanna said the less loose earth put on the roads the better. He, too, thought part of the money should be always retained for work on the roads throughout the year. Too much money is wasted by incapable men, and road warrants are given to men who do not own a horse or even a shovel to work with on the roads. [A member suggested that many men will work better with a borrowed shovel than with one of their own.] The roads would be more easily kept in order if better laid out.

Edw. P. Moore thought the County Commissioners should select for Road Supervisors men who attend well to their own business, not men who wait till the end of May to plant their corn and then work the roads afterward. Too much dirt is thrown in the roads. The ordinary dump scraper should not be used on roads, as it dumps the earth in little piles and makes the road rough. Nor is the road machine, or plow, needed; only shovel, mattock, and pick.

Bennett H. Barnes said the main thing to be done in repairing a road is to open the water courses, and to use as little earth as possible on the road-bed, only enough to keep it a little full in the middle, that the water will get quickly to the side drains. In this way the road will in time get a hard surface that will not cut up easily. Few breaks are needed on any road, and these should be of half-moon shape, the convex part up hill. Never make water cross a road except through a culvert. To cover rough, stony places with dirt is waste of money and time. The stones should be smoothed down with hammers and leveled up with small broken stones.

Jas. F. Kenly said good roads involve good Supervisors, and it would be well for the County to have in every precinct a road gang for special work on the roads, familiarity with the work enabling them to do it better than anyone else. He opposed throwing much dirt on the roads, and believed road scrapers were intended to smooth roads by cutting off knobs and filling in depressions, and not to move all the dirt upon the roads that can possibly be placed there. Good drainage is an essential, too. When a mudhole occurs, the water and mud should be taken out and the hole filled with gravel or other material which will not make mud, and it is a mistake to shovel the worn-out dirt from the gutters into the middle of the road. By placing as little fresh dirt as possible on the road-bed the soluble part washes off after a while, leaving a sandy sediment, which makes a good hard surface that does not get muddy. The roads would soon become better if less money were spent in piling dirt on them, and more in permanent improvement. Roads must be kept, of course, in such a shape that water will run off quickly, and in many cases hills might be graded down gradually. High breaks on hills increase the labor of teams in ascending, and it would be better to dig out a little above the break every year.

John Moores said three factors enter into the maintenance of good roads—good management, sufficient money, and dry weather. They should be worked at the proper time, and there should be less mud throwing. Drainage is a first essential. Much of this should be done with blind ditches in the center of the road and along the sides. In many cases where stone is not convenient, these ditches will be cheaper than turnpiking. As little mending as possible should be done with dirt, and as much as possible should be spent in stone. It is unwise to

cut up roads in small sections. A man qualified to mend roads properly should be given all the road to mend that he will take.

Many farmers have not found out that two horses can pull more on a stone road than four on a dirt road. In making a turnpike the road should be first well drained and graded, and a competent engineer is needed to lay out and provide for draining and mending roads. The average farmer is not always a good road mender, and money is wasted from want of knowledge. As a rule, our roads are miserably located.

John B. Wysong regarded drainage as the most important point in road-making. Some farmers object to having water turned into their fields from the public road, but if done so that the field will not be washed it is of value to grass lands. The practice of farmers cleaning their fence rows and letting the brush fall and remain in the side drains should be stopped. Our system of road mending would not be so imperfect were incompetent men not appointed for their votes. It would pay the County to have a force of men constantly employed to look after the roads, as railroads do. It was unfortunate the State Road Engineer was not appointed. Farmers opposed the measure without thinking.

Geo. R. Stephenson said the care of roads should extend over the year. After heavy rains drains should be opened, water let out from mudpuddles, and holes filled up. The trouble with our roads begins with the people. If they would select the best men for County officials then good men would be chosen to mend the roads; but we will never have better roads till a definite system of mending is adopted similar to that of the railways. Ma. S. advocated district taxation and district supervision of public roads. If the people of a district were compelled to tax themselves for their roads, they would see that the best results were obtained for their money. This system should be supplemented by State aid, on the main thoroughfares at least.

Robt. F. Hanna said Road Supervisors should be taxpayers and users of the roads themselves. Road sections should not be too long. Go over the road early in the season, leveling up and scraping down the knobs. Then let hands follow and open the drains. Do away with most of the breaks. If water must cross the road put on a load of broken stones. Where there is a hole in the road the best plan is to put in a few cartloads of stone. Put as little dirt as possible on the road.

E. C. Hopkins said dirt thrown on the road in the Fall is an injury, making mud all Winter. The money should be spent as needed all through the year, and most of it in making permanent roads. Good practical men could do as well as an engineer.

D. C. W. Smith said we must deal with our road system as it is. Not enough responsibility rests upon the general Road Supervisor, who shifts it upon the 50 or 100 Sub-supervisors under him. The Road League, of which he is President, has done good work. It at first took up a few miles around Darlington, but petitions came in asking it to take charge of other roads, and now the League has 15 miles under its supervision. A man is kept almost constantly employed looking after these roads and making repairs. The County Commissioners have responded liberally to every appeal, and members of the League have given money and labor on these roads. There should be some way by which the Commissioners or the people could more effectually control the roads, select the best men and give them a larger mileage to manage. It is hard to find a man of practical judgment to mend roads at the right time and in the right way. Throwing dirt on the roads in Autumn is waste.

Nothing has more effect in arousing and maintaining interest in good roads than road leagues, but they are difficult to establish and keep up. Everywhere people are aroused to the importance of good roads. Main avenues should be improved first, and if this had been begun 10 years ago, the result by this time would have been astonishing.

Progress in Dealing With Fruit Insects.

Dr. C. V. Riley read at the late meeting of the American Pomological Society an instructive paper on "Recent Advances in Dealing with Insects Affecting Fruits." In this he discusses the methods of combatting the plum curculio, codling moth, red scale, fluted scale, and other injurious insects, giving the result of recent experiments on those insects. Contrary to the expressed opinions of many horticulturists, Dr. Riley questions whether more injury is done to-day to our fruits than was done 50 or 100 years ago. In fact, it is patent that with the advances made of late years in our methods of warfare against these fruit insects, less injury relatively is done; but as the area of fruit-culture increases, so does the aggregate of injury and also the number of species that we have to contend with. He warned pomologists to be on their guard against two foreign insects, likely soon to appear in this country—the peach ceratitis, a sub-tropical insect, resembling the apple maggot, which is extremely destructive to the peach crop of Bermuda, and likely to be troublesome if it once becomes established in Florida and Georgia, and the Japanese peach fruit worm, which is allied to our codling moth, and in some seasons damages 90 per cent. of the peach crop of Japan. He suggested that provision be made for the inspection, at ports of entry, of fruits and plants received from any part of the world from which we know danger threatens.

An effort is being made to have the cotton mills of Georgia make a fine exhibit at the World's Fair. It is believed that such exhibit would greatly stimulate the investment of capital in cotton mills in the South.

"LUMPY JAW."

An Afflicted Steer Cured by a Representative of the Department of Agriculture.

AHE INTEREST which has been shown by the stockmen of the United States in regard to the disease known as "lumpy jaw," or that form of actinomycosis, which appears as external swellings on the head, renders it desirable that a preliminary statement should be made concerning the treatment of this disease. Until recently, it has been the opinion of the veterinary profession that a cure could only be obtained by a surgical operation, and that this should be performed in the early stages of the disease in order to insure success.

In March last an important contribution to our knowledge of this subject was made by M. Nocard, of the Alfort Veterinary School, in a communication to the French Central Society of Veterinary Medicine. He showed clearly that the actinomycosis of the tongue, a disease which appears to be quite common in Germany, and is there known as "wooden-tongue," could be quickly and permanently cured by the administration of iodide of potassium. M. Nocard calls attention to the success of M. Thomassen, of Utrecht, who recommended this treatment as long ago as 1885, and who has since treated more than 80 cases, all of which have been cured. A French Veterinarian, M. Godbille, has treated a number of cases with the same remedy, all of which have been cured. M. Nocard also gives details of a case which was cured by himself.

All of the cases referred to were of actinomycosis of the tongue, and no one appears to have attempted the cure of actinomycosis of the jaw, until this was undertaken by Dr. Norgaard, Veterinary Inspector of the Bureau of Animal Industry. He selected a young steer in April last, in fair condition, which had a tumor on the jaw, measuring 15 $\frac{1}{2}$ inches in circumference, and from which a discharge had already been established. This animal was treated with iodide of potassium, and the result was a complete cure, as stated in the reports which were recently given to the press at the time the animal was slaughtered in Chicago. If lumpy jaw can be cured so easily and cheaply, as this experiment would lead one to suppose, the treatment will prove of great value to the cattle raisers of the country. As is well-known, there are a considerable number of steers weekly coming to our markets which are condemned because they are diseased to such an extent that the general condition of the animal is affected. If these could be cheaply and readily cured by the owners, it would prevent the loss of the carcass, and solve all the troublesome questions which have been raised in regard to the condemnation of such animals.

The animal alluded to above was killed and its carcass minutely examined with a strong microscope by Dr. Casewell, State Veterinarian of Illinois, who pronounced the animal entirely cured, and the flesh fit for consumption. This result of Dr. Norgaard's work will be very gratifying to cattle raisers, since heretofore all animals condemned on account of this disease were sold to rendering companies at the rate of one cent a pound. The number of animals condemned which are afflicted with this disease is very great. During a period of nine weeks—beginning May 8 and ending July 9—there were 180 head of cattle condemned as being afflicted with "lumpy jaw."

The curability of the disease does not affect the principles which have been adopted in inspecting and condemning animals affected with it. The Department of Agriculture has never considered it necessary to condemn animals affected with actinomycosis on account of the contagiousness or the incurability of the disease. Such condemnations have been made when the disease was so far advanced as to affect the general condition of the animal, and all such carcasses would be condemned whether the disease from which the animal suffered was contagious or not, or whether it was curable or incurable.

The treatment with iodide of potassium consists in giving full doses of this medicine once or twice a day until improvement is noticed, when the dose may be reduced or given less frequently. The size of the dose should depend somewhat upon the weight of the animal. M. Thomassen gives one and one-half drams of iodide of potassium daily in one dose, dissolved in a pint of water, until improvement is noticed, which he states is always within eight days. Then he decreases the dose to one dram. The animals do well under this treatment, showing only the ordinary symptoms which follow the use of iodine, the principal ones being discharge from the nose, weeping of the eyes, and peeling off of the outer layer of the skin. These symptoms need cause no uneasiness, as they never result in any serious disturbance of the health.

M. Godbille has given as much as four drams (half an ounce) in one day to a steer, decreasing the dose one-half dram each day until the dose was one and one-fourth drams, which was maintained until the 12th day of treatment, when the steer appeared entirely cured.

M. Nocard gave the first day one and one-half drams in one dose to a cow; the second and succeeding days a dose of one dram in the morning and evening, in each case before feeding. This treatment was continued for 10 days, when the animal was cured.

Dr. Norgaard gave two and one-half drams, dissolved in water, once a day for three days. He then omitted the medicine for a day or two, and continued it according to symptoms. These examples of the treatment as it has been success-

fully administered by others will serve as a sufficient indication for those who wish to test it.

Experiments are now being conducted on a large scale by the Bureau of Animal Industry in the treatment of lumpy jaw with this remedy, and the results will be published as soon as possible. In the meantime it would be well for all who have animals affected with this disease to treat them according to this method, and report results to the Department of Agriculture, Washington, D. C.

WM. WALTER DENT.

Meteorologist and Head of Weather Bureau of West Virginia.

The subject of this sketch, William Walter Dent, was born in the city of Frederick, Md., Feb. 26, 1852. He is the son of Dr. Addison Dent and Mrs. M. J. Dent, well-known residents of Washington for many years past. His grandfather was an officer of the War of 1812, and his greatgrandfather a Captain in the Revolutionary War, and first Episcopal Bishop of the Diocese of Maryland.

Mr. Dent received a collegiate course in Baltimore, Md., and New York City, under the "Brothers of the Christian Schools." After graduating he taught schools in Newark and Jersey City, and LaSalle College, in New York City. He resigned to accept a position as teacher in the public schools of Allegheny County, Md. He subsequently moved to Washington, and was appointed to a position in the office of the District Commissioners, Washington, D. C., 1876.



PROF. WILLIAM WALTER DENT.

In December, 1880, he enlisted in the Signal Corps, United States Army, to become a Weather Observer, and passing through the course of instructions creditably, was assigned to a duty temporarily in the office of the Chief Signal Officer. From thence he was ordered to Erie, Pa., as Assistant Observer. On April 22 was transferred as Observer in charge to Marquette, Mich., where he remained five years and gave entire satisfaction. In June, 1891, he was transferred to Parkersburg, W. Va., where he has by his energy and persistent endeavors awakened an interest in the benefits of the United States Weather Bureau. He organized, under instructions from the Chief of Weather Bureau and Secretary of Agriculture, a State Weather Service, with headquarters at Parkersburg. His zeal in this work is shown by the success attained; he has succeeded in interesting the State Board of Agriculture in the Service. Mr. Dent has become acquainted with the most prominent men of the State, who, recognizing his ability, speak of him in the highest terms of praise. In 1883 he was married to Miss Vernie Smith, of Winchester, Va.

A Useful Fish.

The Menhaden fisheries of the United States are getting to be quite important. Last year the total product of these fisheries, in oil and fertilizing material, amounted to \$2,000,000. The Menhaden is a species of the herring family, and they are especially abundant off the eastern coast of our country. The fish are very rich in oil, and the refuse furnishes valuable manure. It has a variety of names, being known as the Whitefish and Hardhead in Maine, Bony Fish and Mossbunker in New York, and Chebog and Pogy in other sections.

THE FIG.

An Easily Grown and Profitable Crop for the South.

THE FIG TREE is mentioned among the first things that were. It grew in the Garden of Eden, and is repeatedly named in history, both sacred and profane.

Among the Greeks it was one of the most important articles of food; the Spartans, particularly, used it at their public feasts, while the Athenians had the fig tree for the device of their city. Such a high value was placed upon it that special laws were made to regulate its exportation. In very early times it spread around the Aegean and the Levant, and from Greece it was transplanted to Italy and the neighboring islands. Pliny names many varieties, and describes the home-grown fruit as being used as food for slaves, particularly those engaged in agriculture. The fig also plays an important part in mythology. It was held sacred to Bacchus, and was introduced into many religious ceremonies.

Some botanists still class it in the Moraceæ order, which includes, besides, mulberries and a few others. But Prof. Gray classes it in the Urticaceæ, or nettle family, which embraces not only figs and mulberries, but the osage orange, stinging nettles, and hop vines. Our fig is of the genus *Ficus Carica*. In tropical countries it is an evergreen tree, ripening its fruit almost continuously. Some inexperienced observers say that it never blooms, but the interior of the floral receptacle is lined with innumerable little flowers, which are hidden from view.

The tree is cultivated to a great extent in all the Mediterranean countries, but most of our dried figs come from Asia Minor, Spain, and the south of France. Those from Asiatic Turkey are highly esteemed, as also those shipped from Smyrna.

There are many varieties, and these differ widely in color, from dark brown, purple, red, and yellow to almost white.

At the North Carolina Experiment Station there are now growing 40 varieties of the fig, which have been collected by Consular agents from the countries where they are grown. The black and dark purple sorts have proved to be most hardy. They have all, however, endured an average Winter without injury, and it can be safely said that any of the edible figs can be grown successfully as far north as North Carolina, and with little trouble about protecting them in Winter.

The common method of curing figs is sun-drying. In Portugal a slope is cleared of soil down to the hard clay; fires are then built which bake it dry; then it is cleanly swept, and makes an excellent drying floor, for it absorbs and retains the heat of the sun. Before they are spread on the drying floors they are sometimes dipped in lye made from the ashes of grapevine trimmings. This is to remove any roughness or bitterness from the skin. When dried they are packed in boxes, mats, and barrels, and usually flattened with the hand to make a better appearance. Another way is to dry them in ovens, and in Australia thousands are strung with a needle on a strong thread and hung on posts; when packed they are flattened, sprinkled with sugar, and can hardly be told from those now on the market.

The fig will grow abundantly in the South, and bring the best of prices. One grower in North Carolina shipped the crop from five acres, and realized 18 cents per quart for them. The South needs another money crop, and the fig will grow all over the South Atlantic States, from the Chesapeake to the Gulf.

The plant grows readily from the seed, and may even be raised from the seed of the imported dried fruit; in this way many new and rare varieties may be obtained. But the most general method of growing is to resort to cuttings or layers.

Cuttings are made in the Fall of the short, well-ripened shoots, starting on the old wood. These are better than the sappy shoots coming from the ground. The cutting should be eight or 10 inches long, and inserted in rows nearly to their tops in light, dry soil. They should be mulched to prevent freezing, and by Spring they will be rooted and ready to grow. They are kept in the nursery rows one season, when they are transplanted to permanent quarters and cut back to within a foot of the ground, which will insure a low, bushy head. It is easier, then, to protect the tree. French raisers seldom allow theirs to grow longer than nine or 10 feet.

Another method of growing is under glass. Well ripened young shoots are cut in the Fall into single eyes, with an inch or more of wood below each eye. These are buried in the sand in a cellar until a callus is formed over the cut surface, which will perhaps be by the 1st of February. They are then placed, eye upward, in a few inches of sand, and kept in a green-house bench, under which hot water pipes are boxed in. This makes the sand on the bench warmer than the surrounding air. Roots then begin to form before the top starts to grow, which is important, for if the eye started first the cutting would exhaust itself and die. When well rooted, they are transferred to small pots, and still kept in the green-house until the weather is settled.

The fig needs but little pruning. As said before, a low, bushy head is always best. The shoots should be thinned to three or four, at first, and these left to form the main branches. If the buds come too thickly, they should be cut out, and new shoots from the ground should not be allowed to grow, for they take the vitality from the top. The cultivator should aim to keep a supply of wood all over the

tree. The pruning of a peach tree will fill all the requirements of the fig. After it begins to bear all that is needed is to shorten back the main branches in the Autumn, to keep the tree in a compact shape.

The fig produces quicker here than in France, where the growers do not expect a crop under six years. In the United States they usually bear in about three years, and in some instances in less time. One good feature of this fruit is that it is rarely infested with insects or diseases. Ants are sometimes troublesome as the fruit is ripening, but a strong concoction of green willow twigs in boiling water, poured over the tree after cooling, will drive them away.

For many years the fig has been neglected. It needs care as well as any other fruit tree, and will not thrive without it. If the South, by an attempt to cultivate it, would show an appreciation of its worth, their reward would be great, for it cannot fail to yield a large profit.

THE LECTURER.

Patrons of Husbandry, Lecturer's Department, National Grange, on the Grange and the Tariff.

The position of the Grange as an organization upon the question of the tariff is often inquired about, often misunderstood, and sometimes misrepresented.

As a party question, the Grange takes no part in the discussion. It has never attempted to make all its members protectionists, neither has it advocated "free trade."

And yet the Grange has a tariff policy.

What is that policy?

It is the principle of equality as found in the Declaration of Independence, and guaranteed to us in the Constitution: That all citizens shall be equal before the law.

The very essence of all Grange measures for the relief of agriculture is to-day, and always has been, that old principle of our forefathers—equality—equality before transportation laws; equality before tax laws; equality before finance laws; equality before tariff laws.

Hence, the Grange has unitedly insisted that all tariff laws shall "protect" the product of the farm as well as the product of the factory.

The Grange opposed the tariff of the Mills Bill, because it placed 33 articles produced upon American farms upon the free list to start with, and the average tariff for farmers in the whole bill was less than one-half the average tariff it gave the manufacturers.

The Grange tariff plank is "tariff for all or tariff for none; equality before the law."

Interested parties—manufacturers and others—have for a number of years been trying to amend the tariff laws so as to provide "free raw materials," at the same time that they asked high tariff on the goods made from the so-called "raw materials." Farmers have not asked for this "free raw material" legislation, but the Grange has persistently and constantly said, "if free wool, then free cloth, free blankets, free carpets, and free everything made from wool."

The bill lately passed by the House of Representatives placing wool on the free list entirely ignored the rights of the farmer guaranteed under the Constitution, and the Grange will never indorse such action while a single cent of duty remains upon manufactured wool. Wool is not a "raw material." Wool is a completed, manufactured article for the farmer, the result of his investment of labor and capital, and it should stand equal before the tariff law with woolen goods. The Grange ultimatum is: If you take all tariffs from the farmer's product of wool, then take all tariffs from the manufacturer's product of woolen goods; or, if you have a protective tariff, however small, on the woolen goods, then have an equal protective tariff on the wool. The question is not high or low tariff, free trade or protection, Republican or Democratic policy. It is the question of right, justice, and equality before the law, belonging to every American citizen. The same proposition is involved in free potatoes, free hides, free barley, and free other farm products, which we are told are "coming." But interested parties may rest assured that the farmers in their great National organization, the Grange, are in no sense divided on this plain proposition of right, equity, and fairness.

A few figures as to the farmer's manufactured product—wool: The product he "makes." (The farmers down South always call it "making" a crop.) "How many bales of cotton will you make?" "How many barrels of corn did you make?" etc.

Capital invested in woolen mills is well protected by the tariff. If the Free-Wool Bill, lately passed by the House of Representatives, had become a law, capital invested in sheep farms, buildings, sheep, and wool would have no protection.

There are about four times as many farmers engaged in "making" wool as there are manufacturers and all their employees engaged in making woolen goods.

Our farmers produce upwards of 300,000,000 pounds of wool annually. Capital invested in barns and equipments, \$408,291,200; capital invested in sheep, \$124,062,706—total capital, \$532,342,906. Number of flocks and flockmasters in the United States, 1,020,900; number of men employed by flockmasters, 105,000—total number of men in wool industry, 1,125,900. Value of wool product annually, \$75,000,000; value of sheep sold annually for pelts and food, \$20,000,000—total, \$95,000,000.

As an "industry," the farmer who is interested has an equal right to "protection" as has his fellow-citizen who makes the wool into cloth.

This is the position of the Grange on the tariff, and this rule and measure can be applied—and will be—to all other farm products.

The Grange takes no backward steps.—MORTIMER WHITEHEAD.

ALL'S WELL THAT ENDS WELL.

How a Mixed up Love Affair Resulted Satisfaction to All.

BY ADELE M. GARRIGUES.



MARY MORTON stood under the shade of a large apple tree looking up into its blossoming branches and talking familiarly to a robin who had undertaken the housekeeping part of a joint home enterprise there. Behind the large orchard of which this tree was a part was the large, old-fashioned house, on the long veranda of which sat a lady. As the house stood much higher than the orchard, and as there were long sunny spaces between the rows of trees, she could catch occasional glimpses of her daughter, as that young woman made her way through the shadow and sunshine. The daughter had an errand to do at Mrs. Ballard's, and was making a short cut through orchard and fields, instead of going around by the road.

Mrs. Morton saw that, as Kate stood under the big tree, a man came from the road which passed the field and made his way straight to her side. This was interesting to a mother, but she did not yet know whether it was satisfactory or not. She, however, possessed the means of finding out, and rising slowly from her chair—she was an invalid—she took a large field glass from its bracket near at hand, adjusted it, and apparently satisfied herself, for, as she settled back in her chair, she smiled contentedly.

"I presume," said Kate, still talking to the robin, "that you've accepted your very first offer of marriage, and that you think the axis of the earth runs through this old apple tree because you and that lazy fellow over yonder have set up housekeeping in it."

Her interest in the domestic life of this feathered pair deepened as she heard a step coming through the grass. She continued talking, with only chirps and twitterings for reply, and never turned her head until a caressing hand touched hers, and then she seemed to think it time to go.

"No, Kate," said Robert Densmore, "don't go yet, I want to talk to you."

Kate tried to look resolute, but at last sat down on a knoll of grass, feeling that a crisis was at hand.

"It's of no use, Kate, you can't put me off any longer; and why should you? You know that I love you and"—

"And that I love you? I know that's what you wanted to say, but— I'm not really sure of it. How can I be sure? I can't think what life would be without you, Rob, but about its being love, the really tempestuous, never-to-be-mistaken article, I don't know."

"I have'nt any doubts, Kate, and if you are serious, I suppose I'd better go out to Colorado for a year, as John wants me to."

There was something in this proposition that made Kate less restive within the caressing arm that held her. She looked earnestly at Robert and said:

"I wonder if it's love. I wonder how the sleeping Princess felt when the knights came riding through the thorns to awaken her. I wonder how she felt when the right one came. I don't see how I could live without you, Rob."

"Don't try to, Katie. I'll make you love me if you'll give me a chance," and then, after a moment's silence, he went on. "I don't want to go West, but it has come to a point now where I must choose one of two roads. If you will marry me, Kate, I'll settle down here, and we'll be as happy as we know how to be. If not, I'll go out yonder. John wants me to send him a telegram as soon as I can decide."

There was another silence, during which the robins paraded their domestic happiness.

"Rob," said Kate, seriously, "I suppose all girls have dreams. I have had, vague, but interesting. I'm trying to find your place in them. After all, life will seem very safe. I think that Princess must have been glad to see a familiar face bending over her when she awakened. Yes, dear, if you'll take the responsibility."

"God bless you, Kate! and God forgive me if I fail to make you happy!"

He kissed her tenderly, and they sat talking of the future until Kate started up, saying that she must do her errand at once, and get back in time to meet Cousin Helen.

"Cousin Helen?"

"Yes, you've never met her. I've not seen her since we were little folks. Her mother died a few weeks ago, and her father is peculiar; so she's coming to us for the Summer."

"I should think her father would need her at home," said Robert, with his usual frankness. "Are you sure that he is the one that is peculiar?"

They were walking on toward Mrs. Ballard's now, and Kate understood perfectly well that her lover did not relish the idea of a guest for the Summer, at least one coming in on their new happiness so unexpectedly. She felt bound to set him right, however.

"Perhaps, you're right," she said, "you ought to know; but I thought it safe to call a man peculiar who married within six weeks after the death of his first wife. No, he don't need his daughter, and she's coming to us, and you're to be nice to her, or"—

Kate looked unutterable things, and her lover promised to govern his behavior in accordance with her wishes.

"And you know, Rob," she added, just as he was about to leave her, "that I am to visit Mary Simpson next month. I shall be gone nearly a week, and you must show Helen some attention while I am away."

"Why must you make that visit?"

"Because we are always to visit each other alternate years until something dreadful happens; until we are, one of us, dead or married. Now, you must let me go; come to-night and take tea; mamma will be delighted."

Three months after the morning among the apple trees Kate and her cousin Helen, with a party of friends, were located at Point Breeze for a few weeks of rest and pleasure.

"It was an ideal resort, a few years ago," Kate had said to Helen when first the outing was proposed. "The first time we went there we camped for three perfect weeks on the lake shore, out of sight and sound of any human being except old Jerry, who was guide, philosopher, and friend. We had lake, moon, and forest all to ourselves. Now there are hotels, frizzes, Sunday excursions, bad fare, bad air, and all the usual Summer-resort constituents. However, the water and moonshine are there, and with mamma's management we shall do well."

And they were evidently doing very well. From Jerry's cottage they could look out upon the broad water, or sit on the beach and see the breakers coming racing in and dashing themselves out of existence.

They were happily located far up the shore from the hotels, and could be as quiet or as gay as they felt disposed.

Helen Maitland preferred the solitude of the wooded shore still farther up the beach, and very seldom joined Kate when she started toward the more densely-populated districts.

"Come, Miss Robinson Crusoe," Kate said one Saturday morning, "let's go down and meet our man, Friday. He'll be on the steamer this morning, and I can see it coming."

"I'm going to take the skiff and go up the shore," Helen answered. "We want some whortleberries for lunch, and I'm to pick them."

Robert was on the steamer, but Kate hailed him from a distance instead of meeting him, as she had proposed. As she was seated under a large oak awaiting his approach, another gentleman passed him and greeted her. Kate presented him to Robert as Mr. Kilborn, whom she had met at G—— during her recent visit.

Robert amiably inquired if he was one of the yearly visitors at Point Breeze.

"No, this is my first glimpse. I was led to make a voyage of discovery by Miss Morton's glowing description."

The three walked on toward the cottage. When Mrs. Morton had welcomed Robert and greeted Mr. Kilborn, she asked where Helen was.

"I thought she went to the landing with you, Kate."

"No, she went up the shore; said she was going after berries."

As Kate still felt the responsibility of entertaining Mr. Kilborn, Robert strolled away up the shore. As he passed into the woods and out of sight of the cottage his steps became longer and more rapid. He knew the place well, and within 10 minutes, by means of a short cut across a point, he had joined Helen and received a very quiet greeting.

"I came to help you fill your basket," he said, looking vaguely around in quest of berries.

"It is already filled. I was about to start home," and she turned toward the shore.

"Don't think of going in the boat, now. You'll be in danger of sunstroke. Let me show you this path through the woods," said Robert.

"The boat!"

"I'll come up for the boat toward evening. Let me see if it is safely beached."

When they reached the cottage Kate met them, saying with mock severity that lunch was getting cold.

"I think that sounds inviting; its the first suggestion of coolness I've heard to-day," said Rob.

"I'm sorry I failed to make my reproving manner understood; I intended that to be cool," Kate said, and then she rattled on about the people who came down on the boat.

"The Edgeworth girls! They said they would come here for a few days, but I hardly thought they would, as they were going to the Eastern coast in August. We must all go over to the hop this evening, and Rob, you must be especially nice to them. You've no idea how charming they were to me while I was at Cousin Mary's." Then, turning to Helen, she asked what she was going to wear.

"You mean," Helen answered, "what shall you wear. It is an important question; I suppose Mr. Densmore has preferences."

"No, he never knows what I have on. I might as well wear my pink morning dress, so far as Rob is concerned."

"I'm sure you'd look very pretty in it," said that gentleman, rather meekly. "You see I'm satisfied with your appearance under all circumstances." They were rising from the table, and Kate acknowledged this effort by a profound bow.

Helen went to the hop, because they would not consent to leaving her at home. Her mourning dress excused her from gayeties, and after an hour of dancing-room conversation with a few whom she had met, she proposed to Mrs. Morton that they should find seats on the veranda. And later she looked so wistfully on the moonlighted lake that her Aunt said:

"Let us walk down by the shore. Katie won't care, she knows all the married ladies here."

As they were going down the steps that led to the shore walk Robert joined them. He affirmed that he had prostrated himself before the Misses Edgeworth and also before Kate, and added that by the last-named young lady he had been dismissed with disdain.

There was a row of small cottages just under the bluff and quite near the lake. As they were passing them a young girl stopped them and asked Mrs. Morton to come in. "The baby is very sick," she said. "The Doctor says he will die, and Mrs. Thornton is all alone."

Robert and Helen walked on for a time in absolute silence. Before them was the broad expanse of water, above them the silver moon and solemn stars.

"The world is very beautiful," Helen said at last.
"Don't talk to me about the world, I"—



"GOD BLESS YOU, KATE."

Robert stopped suddenly, and in the silence that followed the air seemed trembling with unspoken words. Helen turned away from him and walked down nearer to the water. He left her alone for a moment, and then joining her again said:

"I'm not going to be dishonorable, Helen. I'm going to be true. I did not wander from Kate. I did not seek you. She went away, and you came here, and now—my God! do you think I can marry one woman when with all my heart and soul I love another?"

Helen's face was white. There was a world of unspoken agony in her eyes as she turned away. Robert hurried after her. "Helen," he said, "speak to me! I'm not going to be treated as if I was a common scoundrel! You are not going to run away from me!" He seized her hands as he spoke. She stood silent. She did not again raise her eyes to his. At last she said quietly:

"You will let me go, Robert; you will do right, you will!"—

"No, I won't," he said, fiercely. "Why am I a man if I cannot tell the one woman of my choice that I love her?"

"You did that some months ago."

"Heaven forgive me! Oh, Helen, don't be so cruel, so cold, so heartless. Isn't life hard enough at best? Do you think Kate and I could be happy with each other after this? And I shall tell her."

"I'm going home."

"What do you mean?"

"I mean that I can't be a guest in my Aunt's house another day."

"I shall follow you."

"If you do, I shall"—

Helen's voice began to tremble, and she did not finish her sentence.

"Helen, kiss me once, and I will do anything you say is right."

He lifted her sweet face and drew her to him in an embrace that had all of love's pain and some of its bliss. Not another word was spoken until they reached the cottage, when he left her and went slowly back to Kate. The next morning Helen learned that Robert had taken the night train for home, having had an important business dispatch.

One morning soon after their return from Point Breeze Helen and Kate sat together in their common sitting-room.

"Kate," said her cousin, looking sharply at her, "where's your engagement ring?"

"Over yonder on the table in that small case; why?"

"I thought girls usually wore such things; that's all."

"I don't see why they should. Men don't go about exhibiting badges of servitude; they don't seem to feel the necessity of proclaiming their bondage from the drawing-room door either, and why should a girl do so?"

"I thought she usually exulted in her bondage," Helen said, meekly.

"Well, I don't. If I ever marry Rob, I'll be just as good a wife as I know how to be, but until the mortgage is foreclosed I'll appear as the owner of the property."

The very spirit of mischief seemed to possess Kate during these days. She made mocking illusions to their future happiness when Rob was with them both, but she seemed to have countless devices for avoiding more private interviews. Preparations for their marriage went steadily on. Helen's presence was the price of Robert's silence. She had told him that if he broke faith with Kate she would never see him again.

One day succeeded another, and every one left its trace upon Robert Densmore's face. He felt as if they were all in the hands of some strange, inexorable fate. At times the situation figured itself in his mind as a boating party, hurrying on to the fatal rapids, with no power of escape.

He sat alone in his office one day brooding over this problem of destiny, when Kate quietly opened the door and came in. She had been in his office but once before, and then her mother had accompanied her.

"What is it, Katie? Nothing wrong, I hope," and he gave her a chair.

"Oh, no," and a peculiar, wistful smile lighted her face. "I don't think there's anything wrong, do you? Is it wrong for me to come here?"

"Certainly not! What nonsense!"

"Rob, will you stop as you go home and tell mamma that Mary Jones wants me to stay with her to-night? No—don't come down there; she don't want to see you, dear. And Rob, what time will you come up to the office to-morrow?"

"About 9 o'clock; why?"

"I may not be home so early, but if I am I shall want to see you. Can you stop?"

"I think so," and he rose to see her to the door.

"No, Rob, sit down again, just as you were sitting when I came in. You looked sad, I thought. Don't look sad; I'm surely going to make you happy, Rob."

He began to speak, but she placed her fingers gently on his lips, and added: "No, not another word," and with a strange, serious little smile she bent and kissed his forehead.

Her visit left him in a peculiar mood. He had never seen her so womanly and tender. He sat for some minutes thinking, and then remembering the message he started home, wondering by the way if Mrs. Morton would ask him to stay to tea; wondering if Helen would talk to him. He pursued these unprofitable musings until he reached the door. A servant opened it and told him that all of the ladies were out.

In later years Robert protested that his gray hair dated from that night. He survived it, however, and at 9 o'clock on the following morning, with a bunch of late roses in his hand, again walked up the winding approach to Mrs. Morton's house.

That lady had seen him and was standing in the hall. She held a telegram in her hand. Her face was very white, and showed traces of extreme nervous excitement. She held out the dispatch and allowed Robert to lead her to a seat in the parlor. He read the words at a glance, and seemed for a time as speechless as was Mrs. Morton:

Frank Kilborn and I were married at Mr. Banwell's residence last evening. He will call to-day. I will write.

KATE MORTON KILBORN.

Such was the text of the dispatch. Robert looked at the words with such unconscious intentness that the form of their transcription seemed burned in upon his brain. At last he took Mrs. Morton's hand and begged her to be comforted.

"Do you know Mr. Kilborn?" he asked.

"I know his family. I have not seen Frank for some years—not since he went to college—until he came to Point Breeze. He has been in Europe for the last few years."

"You don't feel solicitous about Katie for any reason in particular, then?"

"Oh, Robert, I'm so sorry for you, and that Kate should be so dishonorable!"

"She has not been dishonorable. She has been true and brave, so far as I am concerned, and I have been a coward."

"What do you mean?"

"I mean that we both found that we were mistaken in the kind of affection we felt for each other. But I should have kept still and made Katie miserable. Thank heaven for her good sense and loyalty to her womanhood!"

"Then, how can she be sure that she loves Frank Kilborn?" said the bewildered mother.

A smile dawned on Robert's sympathetic face at this naive question.

"I, for one, shall have complete faith in Kate's judgment on that subject, and if Mr. Kilborn is satisfied, too, I don't see that anyone need feel troubled."

Mrs. Morton sat in silent thought for a moment, and then her solicitude appeared again.

"But you, Robert, how will you face all this?"

"I'll get Helen to help me, if she will."

"Helen? Is it Helen?"

"Yes, it is Helen. Where is she?"

"She went to Point Breeze with Mrs. Maybury yesterday. She will not be home until to-morrow."

Robert took out his watch.

"I can't get the boat; I'll go down on the evening train. May I send her a telegram?"

"Yes, do. Oh, Robert, I'm beginning to feel resigned. I shan't lose you?"

"No, indeed," and he bent over her very tenderly for the motherly kiss she gave him. "It will be Auntie instead of mother; that is, if I am fortunate."

"Of course you will be. Who could help loving you? And Helen is such a sensible girl. There is Mr. Banwell now. Robert, I'm so thankful you came first. I can meet him calmly now."

Helen was writing a letter for her invalid friend, Mrs. Maybury, when Jerry came to the open door of the cottage and handed her a dispatch. She opened it, thinking of her father, and she read it at least three times before its meaning transferred itself to her astonished brain:

Kate and Frank Kilborn were married last evening. I shall arrive on 7:50 train.

ROBERT DENSMORE.

Helen never knew how she finished Mrs. Maybury's letter. She decided that it must have been a work of unconscious cerebration.

After the late dinner she excused herself to her hostess and went out for her favorite walk up the shore. There was one particular point where she liked to sit and see the sunset glow reflected on the water. It was her habit to rest on the smooth, rocky seat until the red glow faded and the moon and stars appeared. She was sitting there when Robert came up the shore. As she turned her beautiful face toward him it was radiant with more than the sunset glow.

"Is it true?" she asked, as their hands met.

"That Katie is married? Yes, it is true. Is it true that you love me, Helen?"

"Yes, with all my heart."

A particularly big wave dashed upon the shore just then; the wind was evidently rising, and conversation was lost in the roar of the waters.

The Home of the Currant.

"O hyacinthine isle! O purple Zante!
Isola d'oro! Fior di Levante!"

sang Poe, borrowing his chimes this time, however, from an Italian song—"Zante, Zante, fior di Levante!" This flower of the Levant exports not flowers, but fruit. The currants, which had vaguely presented themselves at Santa Maura and Cephalonia, now came decisively to the front. One does not think of these little berrylets as ponderous. But when one beholds tons of them, cargoes for ships, one regards them with a new respect. It was probably the brisk commercial aspect of the currants which made the port look so modern. All the Ionian Islands except Corfu export currants, but Zante throws them out to the world with both hands. I must confess that I have always blindly supposed (when I thought of it at all) that the currant of the plum pudding was the same fruit as the currant of our gardens—that slightly acrid red berry which grows on bushes that follow the lines of back fences—bushes that have patches of weedy ground under them where hens congregate. I fancied that by some process unknown to me, at the hands of persons equally unknown (perhaps those who bring flattened raisins from grapes), these berries were dried, and that they then became the well-known ornament of the Christmas cake. It was at Zante that my shameful ignorance was made clear to me. Here I learned that the dried fruit of commerce is a dwarf grape, which has nothing in common with currant jelly. Its English name, currant, is taken from the French "raisin de Corinthe," or Corinth grape, a title bestowed because the fruit was first brought into notice at Corinth. We have stolen this name in the most unreasonable way for our red berry. Then, to make the confusion worse, as soon as we have put the genuine currants into our puddings and cakes, we turn round and call them "plums!" The real currant, the dwarf grape of Corinth, is about as large as a gooseberry when ripe, and its color is a deep violet-black; the vintage takes place in August. It is not a hardy vine. It attains luxuriance, I was told, only in Greece; and even there it is restricted to the northern Peloponnesus, the shores of the Gulf of Corinth, and the Ionian Islands.—*Harper's Magazine.*

It has been found that an orange tree will produce fruit until the tree reaches the age of 150 years.

Robert Bonner and His Trotting Horses.

There is no name so intimately and prominently associated with the American trotting horse as that of Robert Bonner. He has spent more hundreds of thousands of dollars, not of inheritance, but of his own earnings, for fast trotters for his own amusement than any score of men who have used them for the turf, says *Harper's Weekly*.

Finding that he had impaired his health by years of close attention to business, he consulted his physician, and was advised to try horseback riding. A saddle-horse was purchased, but it only needed a few rides to show him that the exercise was entirely too violent. Then a driving horse with a road wagon followed, and Mr. Bonner very quickly became an expert reinsman. Discovering, as he soon did, that the pleasure of driving came from the speed at which his horses were able to go, he determined to possess the fastest by the record that could be bought. At the time of his first purchase, made through Gov. Rice, of Massachusetts, there were only 19 in the 2:30 list, and the great Hambletonian had still to put even one on the magic roll. Commodore Vanderbilt and Col. John Harper were the only really well-known business men who drove fast horses on the road for pleasure, so that Mr. Bonner has been identified with the light harness horse, both on the road and on the track, for almost the entire history of that production of the skill of the American breeder. This first team could trot in about three minutes, but this was entirely too slow, and he bought the then turf wonders, Lady Palmer and Flatbush Maid, driving them soon after the purchase a mile in 2.26, two miles in 5.01 $\frac{1}{2}$. This time surpassed all previous double-team performances, and horsemen could hardly believe that anything on four legs could go so fast. No member of a royal family ever held receptions crowded with such enthusiastic admirers as did this truly great pair of mares.

Being a strict member of the Presbyterian Church, many unfavorable comments were naturally made on his purchasing such fast horses, but he had carefully considered the subject in all its various bearings, and determined that a man could own fast horses as well as belong to the Church. He would own them for the pleasure of driving them, and would never under any circumstances permit horses belonging to him to be raced for money or other source of gain. There were many incredulous smiles when this statement was made, as it was considered almost impossible for a man to own such horses and not trot them on the track. The experiment had been tried time and again, with the invariable result of the owners finally drifting on the turf. Not so with this man, whose Scotch-Irish persistency had enabled him to conquer fickle fortune. He has steadily acquired the fastest horses by record as they came forward, and they have never been used but for his own pleasure and to gratify a personal ambition. A parallel of this isolated case will, in all probability, never again occur in the history of the trotting horse.

Silk Culture in Georgia.

The most distinctive industry of the Salzburgers was the culture of the silk-worm and the weaving of silk. Even as far north as Virginia much care was bestowed on silk. Gen. Oglethorpe shared in this general enthusiasm, and encouraged the industry among the colonists. As far back as 1733 the Trustees of the province induced Nicolas Amatis, of Piedmont, to remove to Georgia. Besides his family, Amatis took with him his servant, Jaques Camuse, for the special purpose of rearing silk-worms and manufacturing silk. In 1736 the Salzburger pastor, the Rev. Mr. Bolzius, led in introducing the industry among his people. In 1742 500 mulberry trees were sent to Ebenezer, and a machine was erected for preparing the silk. By the year 1750 nearly all the English had abandoned the silk industry. But the Salzburgers persevered, and in 1751 they sent over to England 1,000 pounds of cocoons and 74 pounds of raw silk, which brought them a return of 110 pounds sterling. The Trustees of the province encouraged the industry by giving to each female who should learn the art of spinning a reeling machine and two pounds sterling in money.

All about the old church at the present Ebenezer there are still mulberry trees, no doubt the neglected descendants of the original planting a century and a half ago. Indeed, the present Salzburgers have not quite given up the working in silk. I stopped at the home of a venerable couple, where I saw the plain and well-worn spinning reels used for this purpose. There is, however, no longer any weaving of silk in all the region. The only article manufactured is fishing lines. These are of the finest and strongest quality, and are in great demand in Savannah.

Some of the silk goods manufactured by Oglethorpe's colonists commanded a high price in the markets of the Old World. The Queen of England on one occasion surprised her guests by wearing a dress made entirely of the silk woven by the Georgia weavers.—*Harper's Magazine.*

A Drink for the Hay Field.

The workers in the hay field now and later in the harvest field will be calling for something to quench their thirst. Nothing can be taken so safely as oatmeal and water. A cupful of oatmeal stirred into a pail of water, either naturally cold or with a good-sized piece of ice in it, affords a drink which will quench thirst very completely, and at the same time sustain a man in the heavy work of the hay field. It is literally meat and drink in one, and much more healthy and sustaining than any of the concoctions of vinegar, sugar, and ginger so commonly used. Still more is it to be preferred to any drink with alcohol in it, as these only stimulate without strengthening.



Stable Talk.

The Russians are introducing the French-Percheron horses in large numbers.

Developing the American draft horse seems at last to be receiving the great attention it deserves.

No good mare should be sold off the place. They will not bring in the market anything like their value to the farm.

The great law of success in breeding has been formulated as: "Breed in sufficiently to fix the type, and then breed out to strengthen the constitution."

The people of England seem to have a high regard for the Shire horses. At the Royal Show at Doncaster a two-year old Shire stallion brought £2,625, or nearly \$13,125.

If you want to make money, breed good and extra good horses. There are enough medium to poor horses in the market to lose all the money that breeders have to spare.

The Germans, although they purchase young horses, will not use them until they are five or six years old. They fear that they will strain the horse if he is utilized when under that age.

There is a disposition in Europe to breed black Percherons, but it is found that these lose some of the characteristics of the genuine dappled-gray Percherons. The eye is small and without expression.

Some people claim that with good mares one can almost invariably obtain good products. This claim can be doubted. It takes two to make a bargain, and it takes two good horses to produce a good colt.

The jostling which Rupee was subjected to while traveling in a train recently does not appear to have affected his gait to any great extent, as he stepped a mile the other day in 2.22½, the last half being made in 1.08½.

Among the best trainers toe weights and heavy shoes are classed among the back numbers. The trainers of Bonnie Wilmore only allow her to carry 10 ounces on each foot this year, as against 18 ounces which she carried last season.

Electricity has recently been applied to establish the condition of a horse's foot. If the hoof has been pierced with a nail to the quick, the horse will feel the electric current and become irritated; in the other case the current cannot pass through the foot.

A joint exhibition of the Vermont State Agricultural Society and the Connecticut River Valley Association will be held at the kite track at Billings

Park, White River Junction, Vt., from Sept. 6 to 9. The horse department will be superintended by Mr. George Davis, of East Montpelier, Vt.

Give your horses a pint of linseed oil for a couple of days, and you will find that it serves as well, if not better, than any other laxative. It acts easily, and is not followed by disagreeable results. It should not be given, however, to a mare in foal without having assurance from one who knows that it can be safely done.

A practical farmer has found that his best remedy for heaves is this: He beats three eggs into one quart of pure fruit vinegar, and after about three days, or when the mixture is all together, he adds one pound of strained honey. In tablespoonful doses it can be given with the feed twice a day or placed on the tongue of the horse.

One of the prettiest of New England's stock farms is the Lake View Farm, situated on the shores of Lake Winnipesaukee, near Meredith, N. H. This place comprises 400 acres, and everything about it betokens an air of prosperity. Here are kept some of New England's fastest and best horses, among which may be mentioned Falcon, Jr. (2.21½), Ira M. (2.30), and Meredith Boy.

Russia is beginning to realize the value of the Percherons, and is now buying large numbers for breeding purposes. At an exhibition of Percheron horses held at Nogen-le-Rotrou, the capital of Perche, France, an official horse purchaser of Russia offered 5,000 francs for a two-year old horse. This is considered quite a high price to pay for a horse in that country.

Not to Be on Exhibition.

There will be no Percheron horses on exhibition at the World's Fair from the home of the breed—France. The principal reasons for this are because the Societe Hippique Percheronne could not secure satisfactory terms with the commission which has charge of the exhibits of France at the Fair. Another reason is that the French breeders think that they will be in competition with the American breeders if they send an exhibit. The third reason is the expense of all kinds which the voyage will occasion, the risks to be run, the bad appearance the horses would present after such a journey, the prospect of not finding purchasers for them, the buyers preferring those already acclimated. This is certainly something which should be regretted, as there are many Americans who desire to see the French horse as he is.

SWINE.

Pen Notes.

Buckwheat hulls produce piles in pigs. Therefore, it is not very well to use them as food for the pigs.

It is thought that pigs grown from old dams exhibit greater vitality than others, and are less liable to disease.

The enterprising farmer will hasten the fattening of his hogs, so as to have them ready for the market in the Fall.

The farmer who raises hogs the flesh of which is fine will be able to get more than the market price if he once secures a reputation for such. The big, coarse, and over-fat pork will not bring much money, for the simple reason that it does not sell very good when placed on the market.

All farmers do not use coal, but those who do can make good use of the ashes. It is well-known that excellent walks can be made of them; but they are valuable for another purpose. The hogs will be benefited greatly if the ashes are fed to them. They correct the acidity of the pig's stomach, and do a vast amount of good.

The Berkshires are one of the oldest breeds in existence, and one of their drawing cards is a disposition to take on from the start a great amount of flesh and fat. Another point in their favor is the immunity which they have from disease. This is not saying that they are disease proof, but on account of their strong constitutions they are more able to keep disease at bay.

At a meeting of a farmers' institute recently the question of what to do with the corncobs came up. Four farmers stated that it would be better if they were fed to the hogs, instead of throwing them on the manure pile. The cobs should be ground into a fine meal before being fed to the pigs. They stated that it was cheaper to let the waste cobs go to the pig pen rather than use them for fuel. Wood is plentiful, and can be obtained cheaply, and with but little labor.

YOUNG PIGS.

A Good and Cheap Way of Raising Them.

EDITOR AMERICAN FARMER: The first few weeks of a farrow of pigs is the most important in their life. What care and attention that is bestowed on them while they are this young will be repaid when the animals are of a marketable size. I remember reading in a paper a short time ago a paragraph which impressed me considerably. As far as I can remember, the writer said that he considered the loss of a litter of pigs the greatest loss of any animals. If your cow loses a calf she will pay for her keeping in milk, or the mare may be put to work; but your sow is not fit for anything at present.

But I intended to tell you something about the feed of pigs. When the pigs are born, then begins the time when your care and attention is needed at the pig pen. The baby pigs are not able to help themselves, and the mother sow is pretty much in the same condition. For

the first week or so I feed the little pigs through their mother. I give her what food I think is most necessary, and give her enough to supply the demands of the sucklings.

When the young pigs are two weeks old I give them their first lessons in eating. That is the proper age, in my opinion, to teach them this. I give them plenty of sweet milk and some light food. The little pigs will develop their natural form after they are four weeks old. They should be fed liberally and not stinted. If they are stunted at this age they will never give their owner much profit when sold as pork.

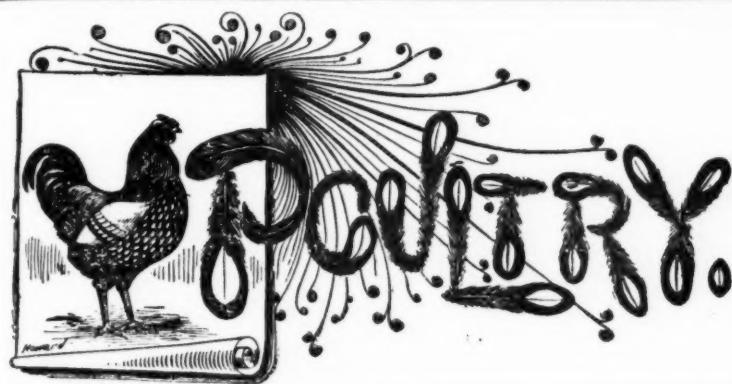
When the young animal reaches the age of four weeks some farmers imagine that its digestive organs are capable of doing the work of a full-grown hog. Acting upon this they feed the young pigs on too heavy food. This is where they make a great mistake. It is absurd to think that a month-old pig is capable of digesting the food of a grown animal. Feeding too heavy or concentrated food is likely to stunt the young pig. Fast growth is what is desired, and this can only be had by feeding plenty of food which the pigs can easily and readily digest.

I give my pigs plenty of milk and an abundance of light food. I do not waste any, but feed them as I do my chickens—give them all they will eat up clean. You will probably wonder what I call light food. I do not consider corn such, and therefore feed but very little of it. I class bran, shorts, ground oats, and green food as being light food. I give them plenty of grass and other green food.

I regard exercise as being the principal preventive of disease, and I may as well add here that exercise is one of the best of things to keep health in a pen of grown hogs. Plenty of fresh drinking water is always at hand, but there is none for the animals to wallow in. Charcoal and salt is placed within convenient reach of the pigs. The pens are dry, and the sleeping quarters are also kept dry. I make it a point to see that this is so. Hogs are very delicate—I think that I can use this word—animals. They are easily subject to disease, and I have found that the best plan is to keep disease away from the hog pen.—E. C. G., Irwin County, Ga.

Robbed the Piggies.

Eight little pigs that were suckled by their mother on the farm of Mrs. Stinson, two miles from Bridgeton, Bucks Co., suddenly began to grow lean and thin. They appeared as if they were being starved to death. As the maternal swine was fat and had the appearance of being a rich source of the necessary lacteal fluid, Mrs. Stinson was unable until recently to discover what ailed the hungry pigs. Quietly entering the pig sty she was astounded to see two immense milk snakes, over five feet long, quietly clinging to the udder of the mother hog, which apparently was not at all disturbed. They had persistently been robbing the pigs of what belonged to them. One of the serpentine pirates was killed by Mrs. Stinson, but the other escaped through a hole in the floor.—*Baltimore Sun*.



Cacklings.

The effect of warm weather is shown in the egg basket.

Do not frighten the hens, as it diminishes the egg supply.

Now is the time when the fowls relish green food. Give them plenty of it and less grain rations—especially corn.

Care should be taken that the fowls do not lay on too much fat. Be careful in feeding, and there will be no danger.

Turkeys are in their glory now, and they secure plenty of insects while foraging. The farmer cannot realize the good they do in this way.

It very frequently happens that eggs are soiled when collected. Wash them before marketing, and the chances are that a better price will be obtained.

Do not place the drinking water where the sun will strike it. The water becomes warm quick enough while in the shade, without letting the sun warm it more quickly.

Let the poultry have the run of the stubble. They will gather a large number of insects, besides picking up the grain which was lost during the harvest and which would be otherwise wasted.

Don't feed the ducks too much, as they will be apt to become sated and diseased, and their legs may become paralyzed from the effects of it. Peas, oats, and ground corn in moderate quantities will make them thrive.

If the large gray-head louse troubles your young turkeys immediate action had better be taken, or the result will be a large diminution in the number of young turkeys. Grease the head of each fowl so affected with lard, and as it is obnoxious to the louse he will no longer trouble the turkeys.

If the turkeys have been properly trained they will come home at nights to roost. All that it is necessary to do to get them to acquire this habit is to give them a little feed every evening. If the young poult are treated in this way they will be sure to come home at nights when they are large enough to care for themselves.

For an experiment we would advise those farmers who have common turkeys—dunghills, may be a better name—to purchase a gobbler of the Mammoth Bronze breed, and let him run with the turkey hens. We know of a farmer who tried this, and the result was that when he killed the half-breeds they made an average of 18 pounds ready for the oven.

Two Ridiculous Suggestions.

It is really ridiculous to read some of the suggestions which appear in papers in regard to poultry. The most absurd ideas are advanced, and undoubtedly the originators were not very familiar with poultry or their habits. Some of the suggestions give me the impression that the author never saw a chicken alive. In reading a paper the other evening I came across the following paragraph: "Nothing will break up a cold in a fowl so quickly as quinine. Give two two-grain pills—one at night and one in the morning."

And another as equally absurd: "If the fowls are overfat, the best step to take is to give a family liver pill, and then feed bran in the morning and oats or wheat at night."

As I never tried either of the above remedies I cannot vouch for their efficiency. They may or they may not be good for what they are recommended, but if a person has a number of hens it would take him several days before he would be able to treat them with the above remedies. The cost of this medicine would also be quite an item, whereas there are plenty of simple and almost costless remedies, which have been proven to be efficient. I would put the poultry raiser who used such remedies as these in the same class with the persons who originated them. The trouble seems to be that there are too many persons who bother their heads and worry themselves in order to get something new, and generally the product of such is well represented in the utterly ridiculous and simply absurd suggestions as given in the two paragraphs above. The poultryman had better stick to the remedies which have been tried and found good, rather than to embark in the experimenting business.—MRS. MARY HAYWARD, Hagerstown, Md.

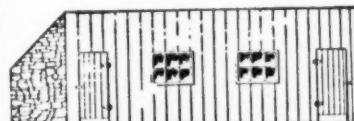
The Sultan Breed.

A breed of poultry which is very little known in the United States is the Sultan, which was first introduced into this country about 40 years ago. The fowl is of a pure white color and the plumage is full, covering the entire body. Being of a tame nature, they make good pets. They resemble somewhat the White Poulards, having short legs fully covered with feathers to the center toe. This breed is worthy of especial attention, and it is thought that the day is not far distant when breeders will take them up and bring them to the attention of the general public.

My Henry.

EDITOR AMERICAN FARMER: In nearly every agricultural or poultry journal which you may chance to pick up you will probably find an article written by someone about his henry. A shed may do in some places, but here in Kansas, when Dakota sends us down the tail end of a thing which she calls a blizzard, we want something more substantial than a shed, and very often we want a more substantial dwelling-house.

In building a henry there is one very important point to be looked after, and that is to have it free from dampness. Where this point is neglected or not guarded against we are sure to have trouble on our hands. Another—and hardly a minor point—is to build the house to suit our pocketbooks. I am a farmer, and we all know that farmers are not overburdened with fat pocketbooks.

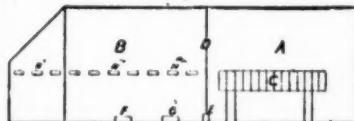


FRONT ELEVATION.

The smallness of my pocketbook was the reason why I had to use economy in building my henry, though farmers living in timbered sections, where lumber is cheap and in plenty, will not have to follow my plan. The manner in which I formed the plan of the style of my house came to my mind in a peculiar way.

In the field in which I was plowing one day I ran across a patch of stones. I did not like the thought of always plowing around them, so I took my pick and crowbar, and whenever my plow ran against a stone I dug it out. My next thought was of what use could I make of the rocks, and the idea came to me to build a poultry house.

But a house that is all stone is very apt to be damp, and as our good poultry editor had an article on dampness in THE AMERICAN FARMER of June 15, and so ably handled the subject, it is useless for me to give any more warning. My poultry house stands on ground which slopes to the east, so as to give good drainage.



UPRIGHT PLAN.

A—Roosting room.
B—Laying room.
C—Four posts set in the ground and held together by one-by-four scantlings. The perches are made of the scantlings of the same size.
D—Lath partition, separating the rooms.
E—Sliding doors affording exit and ingress to both rooms for the fowls.
F—Gravel box, etc.
G—Water-pan.
H—Nests fastened to the walls, and so arranged that they can be easily taken down for cleaning.
Chaff is thrown in the room, B, in the winter time, so that the fowls will have something to scratch in and take exercise.

It has a shed roof. The north side, the east and west ends, are made of stone, while the south side is of lumber. The house is 10x30 feet; the north wall is four feet high and 18 inches thick,

and the south side is seven feet high. There are two entrances and two windows facing the south, so as to admit plenty of sunshine and air.

For mortar I used hardpan clay, coal, ashes, and lime. This was my first job of masonry, and I am proud of it. The interior of the house is divided into two rooms, the partition being made of laths. One room is used for roosting purposes and the other for a brooder, and also used as a feeding room on cold and stormy days.

I shall have a house that is better for biddy in the near future, as she pays me a large per cent. to always have things common. But she is not growling about her present quarters, and seems willing to abide her time.

I meant to speak of the roosts. I set out four posts, and to these I nailed a board lengthwise for the roost, and then placed in the dropping boards. I did this so that the roosts would be away from the wall, and my idea in doing this was to keep the wall free from lice.—J. R. COTTON, Emporia, Kan.

Questions and Answers.

I have several hens who are anxious to sit. Two of them have already raised a brood. My neighbors tell me that I will have bad luck with the chicks which are hatched this late in the season. If this is true, why so? Would you advise me to set them?—A. N. C., Great Falls, Va.

We do not see what is to binder you in setting the hens. The talk of your neighbors about bad luck is partly nonsense. The hot weather is not very conducive to the health of the chicks as is the weather of the Spring months. Lice multiply rapidly, and quick steps are necessary to banish them. A good many people pay no more attention to the late raised than the early ones, and consequently, the weather being favorable, the increase in the number of these pests have a fatal effect upon the chicks. This is probably where the "bad luck" of your neighbors comes in. If care to exterminate the lice the chick will be as healthy as those which were raised in the Spring.

I see in several papers the statement that rats like ducks better than chickens. Can you tell me why this is so?—J. C. F., Chillicothe, O.

This is an absurd statement, and if it were reversed it would probably be more true. We have all read of the fox and the grapes. So it is in this case. The chickens being on perches cannot be so easily reached by the rats, but the ducks sleeping on the ground make an inviting attack for the rats. Consequently, the ducks being so conveniently situated for the ravages of rodents suffer the most.

Chicks which are hatched this late in the year require special attention. If proper precautions were not taken before the eggs were placed under the sitting hen to guard against lice, in all probabilities the chicks are very lousy. If they show any signs of droopiness catch them, and, after putting a little lard on their heads, let them go.

It always pays to keep the best blood to breed from. Blood will tell in poultry as well as in all other stock.

THE AMERICAN FARMER.

"O fortunatos nuntium suis et bona norint agricolas." — VING.

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THE ANTI-OPTION BILL.

The Anti-Option Bill has been before the Senate for consideration for several weeks, and has been discussed at intervals with a great deal of earnestness. The pressure for and against the passage of the bill is very strong, with the Grange on one side and the Boards of Trade on the other. There is undoubtedly a clear majority of the Senators in its favor, but the opposition is a powerful minority, and is employing all the parliamentary tactics possible to prevent the bill coming to a vote. It is this which, more than any other one thing, is protracting the session, and preventing an adjournment. The full text of the bill will be found on another page.

Senator Daniels, of Virginia, opposes the bill on strictly Constitutional grounds, and also that it is fatally defective, and will not do the thing that it proposes to do. He denies that Congress has the right, under the pretense of imposing taxation, to invade the prerogative of the States and direct how private business shall be conducted, and he also denies that this bill will diminish in the least the vicious practice of gambling in food products.

Senator Vest, of Missouri, denounced the bill as the most pernicious measure which had come before Congress in the 14 years in which he had been a member. Before he could vote for it he would have to give up every conviction he entertained at present as to the structure and autonomy of our Government. It was class legislation, pure and simple, and it might as well be proposed to use the taxing power of the United States to extirpate the faro banks or the lotteries. It was a direct invasion of the police powers of the several States.

Senator Mitchell, of Oregon, asked if this was not similar to the act of Congress imposing taxes upon liquors.

Senator Vest said that the cases were radically different. The tax on liquors was for the real purpose of obtaining revenue, was clearly within the Constitutional power of Congress, and met with general approbation. In the Anti-Option Bill the tax was a mere pretense. It proposed to stop grain and cotton gambling by a series of taxes and licenses. It would tax every man \$2 who made a contract for future delivery of any goods, and license public gamblers at the rate of \$1,000 a year. It could not possibly raise any revenue. "How could you raise a revenue with five cents a pound on lard and cotton, and 20 cents a bushel on wheat, corn, rye, and oats?" The Senator read letters from Boards of Trade and cotton manufacturers testifying to the disastrous effects of the passage of the bill upon both foreign and domestic business.

Senator Hiscock, of New York, said that the bill proposed to make illegal and immoral contracts sanctioned by the common law, and recognized as honorable by every civilized Nation in the world. It would characterize as common gamblers merchants who stood among the foremost of our citizens and distinguished by good deeds in every relation of life. If there are evils connected with the business in which they are engaged, the Legislatures of their States are competent to apply the remedy, and it is their place to apply it. He warned the Senators that the indignation which would arise over the trusts which would spring up under this bill would sweep all implicated in it into their political graves.

Senator White, of Louisiana, made an exhaustive argument against the bill from a legal standpoint. He denounced it as so incongruous that no one could tell what its effects would be, and said that it was in violation of all the traditions and spirit of the Anglo-Saxon race. He read earnest protests from the New York Chamber of Commerce, the Chicago Board of Trade, from banks and bankers of both those cities, and from a number of other similar persons and institutions against the passage of the bill.

Senator Washburn, of Minnesota, defended the bill, and said that when it was first introduced there was a great deal of opposition to it by Boards of Trade and others, which misunderstood its provisions. This feeling was passing away, as the elevator men, warehousemen, and actual dealers found that it did not interfere in the slightest with their genuine transfers of property. In support of this he read a memorial from the Minneapolis Board of Trade praying for the passage of the bill. He did not deny that prices of wheat had broken on receipt of the news of the probable

passage of the bill, and contended that this furnished a reason why the bill should pass; that it would drive out the gamblers and confine the business to actual dealers.

Senator Hansbrough, of North Dakota, said that all the opponents of the bill had admitted that the Supreme Court would maintain its constitutionality, and he proposed to support the Court's decision in advance by voting for the bill. It embodied an idea over which the grain-growers had been thinking very seriously for several years, and it was also favored by those commission merchants who desired to do a legitimate business. It would completely destroy a vicious system which had grown up in this country. Combinations of men, and sometimes one man alone, sell in a single day 10 times as many bushels of grain as are produced in the whole country in a year. In New York the actual sales of cotton had been 2,500,000 bales in the last six years, while the fictitious sales had been over 150,000,000 bales. In the same city last January the spot sales of wheat had been 3,273,000 bushels, but the fictitious sales had reached 83,855,000 bushels, equal to one-seventh of the entire wheat crop of the United States. In the past six months fictitious sales of wheat in New York represented \$740,000,000, while the actual sales were but \$47,000,000. He asserted, and produced letters to prove it, that nineteen-twentieths of the grain operators are bearish, force the market into a rut, and keep it there, without regard to the real value of grain.

Prices are made to suit the option exchanges, and some fair-minded thinkers estimate that the average loss by these tactics to the farmers of the country is 50 cents a bushel on wheat; corn, 15 to 20 cents; oats, 10 cents; rye, 20 cents; pork, 1 cent per pound, and cotton 3 cents a pound. Only about 24 per cent. of our wheat, and 6.7 per cent. of our corn reaches the option seller; yet he fixes the price upon all that is raised. The small amount of the products really handled by him shows how fallacious was the claim that "future" selling was necessary to the marketing of our products.

Senator Eppa Hunton, of Virginia, supported the bill. He recalled how the disbanded Confederate soldiers of his State returned to their ruined farms, and rapidly restored their fortunes by reason of the high prices that then prevailed for farm products. Then came a turn in the tide of prices, and they have constantly fallen, so that where there was once prosperity there is now poverty. The fall in prices could be mainly attributed to the gambling in agricultural products, by which short-sellers depressed

prices. He read from letters and newspapers to show that the short-sellers had robbed the farmers of \$24,000,000 at one stroke by breaking prices when the news came of the probability of the passage of the Anti-Option Bill. They had cost the South \$50,000,000 by arbitrarily depressing the price of cotton.

Senator Coke, of Texas, supported the bill, and made a long argument in favor of its constitutionality.

Senator Palmer, of Illinois, pointed out that the bill gave no license to deal in options in States where the same have been prohibited by law. He was opposed to the bill on general principles. It meant the substitution of despotic force power for the enforcement of law, instead of leaving the people of each community free to enforce their own laws. Was it expected that Federal officers would be more zealous and efficient in enforcing the laws than those elected directly by the people?

THE farmers of southern California are rapidly reaching a point where endurance of the Southern Pacific Railroad's extortions ceases to be a virtue, if it ever was. The management of the road manages to catch the farmers both ways. If prices are low it gets its full freight rates anyway, and if the selling prices are not sufficient it collects the balance off the shipper. If prices are high it puts its rates up so as to leave shipper but a small margin of profit.

Awhile ago, when potatoes were in great demand in Arizona but were a drug in California, a farmer of Los Angeles went to the Southern Pacific and asked for rates on potatoes to Tucson. The agent asked what potatoes were worth in Tucson, and the farmer unsuspectingly gave the price. The next day he was given a rate which would leave him a profit of one-quarter of a cent per 100 pounds.

Fifteen years ago the farmers of San Joaquin Valley found that raising castor beans was a very profitable industry, and they did very well at it until the railroad found out that there was an opportunity for a big squeeze, and ran up its rates several hundred per cent., and drove most of the farmers out of the business.

The rates are so exorbitant that it has been found profitable to maintain a wagon freight line between Fresno and Stockton.

Such things are simply unendurable, and some remedy will speedily be found for them.

Ask all your neighbors to subscribe for THE AMERICAN FARMER.

PRAIRIE TREE GROWING.

The present season has been the best known since the great plains of the new Northwestern States were settled for tree planting. Nothing can be more important in the task of home-making upon the prairies of the Dakotas, Nebraska, and other treeless sections than the establishment of artificial forests. There was a general tendency toward skepticism in the beginning when the proposition to grow trees in this region was broached, it being believed that because trees were not found there they could not be grown there even under civilized conditions. Experience for 10 years has shown that while great difficulties are encountered which give an enormous mortality in young tree life, still it has been shown by experiment that it is quite possible to grow a large variety of trees which will furnish wind-breaks, shade, fuel, nuts, and even many varieties of fruits in large sections in settlements where not even a switch was found growing in its natural state.

One farmer in Hamlin County, S. D., who owns a section of land and has given much attention to this subject, reports that he has growing upon his place at this time 60 different varieties of trees. His experiments have covered a period of about 10 years, and the result is valuable to those who thus far have not made serious attempts in this direction. He says that the most successful of all the varieties he tried was the wild black cherry, a tree which is a moderately rapid grower, hardy, and reaches a size which makes it valuable for fuel, shade, and fence posts. Next, he has found the box elder and white ash to be the best adapted to that climate, while the cottonwood and several kinds of willow have also done well. The cottonwood grows the fastest of all, and box elder next. The cottonwood, however, is not a long-lived tree, and at the end of 10 years, while being larger than anything else planted, it began to die in great numbers. At 10 years from the seed this tree was four or five inches through at the butt and 20 feet high.

A planter who had cultivated a great number of these trees in that portion of Dakota says they should be planted four or eight feet apart, and at the end of 10 or 12 years thinned out and used for fuel. It was found, for some reason, that the tree which died standing made specially good fuel and answered all purposes for the cooking-stove in summer, although in a climate so cold as Dakota it could not take the place of coal or hard wood for warming purposes. In the southeastern part of the State, in the vicinity of Flandreau and Sioux Falls, the soft maple, and various kinds of oaks planted from seeds in the

acorns taken from southern Wisconsin, have done well. One gentleman near Sioux Falls, who, 18 years ago, planted 20 acres of soft maple seed, last year thinned them out, cutting 10 cords of firewood, and this year reports that he will cut 100 cords. Near Flandreau there is growing in fine condition at this time 50 acres of oaks planted in 1879. They are thriving and make wood fast.

SHEEP SHOW SUPERINTENDENT.

Hon. A. M. Garland, of Chicago, has been appointed, at the suggestion of Chief Buchanan, the Superintendent of the sheep show at the World's Columbian Exposition. This will give confidence and satisfaction to sheep raisers. Mr. Garland is possessed of many essential qualifications for the place. He has a wide knowledge of the world's sheep industry, and is not tied to narrow prejudices. He has a wide acquaintance with sheep men in this country and abroad, and is known to be a most progressive, clear-headed gentleman.

Mr. Buchanan knew his man, and the management are to be congratulated in securing the services of so wise and trustworthy a man as Mr. Garland has been. For 30-odd years he has stood in front rank, and is known to be a solid, reliable worker for American sheep husbandry. The sheep men of the world know him and can trust him to look after their interests.

The sheep show is safe in the hands of such a man. THE AMERICAN FARMER congratulates everybody that the sheep show has a head, and a man with a head on him.

"THE BLESSED BEES."

THE AMERICAN FARMER has rendered a particular service to the beekeepers of the country by a general postal card interview of all the prominent apiarists from Maine to California as to the conditions of their colonies, the effect of the weather upon, and the prospects of the honey market. This gives an immense amount of information of the highest value to beekeepers everywhere, and we know that they will all be grateful to us for securing it for them. We present the first instalment to them in this issue, and will probably complete it in our next.

We want our bee friends to keep up the practice of writing to us regularly on matters connected with their business. THE AMERICAN FARMER will always pay special attention of the winged little gatherers of sweetness and wealth.

WHEN you have read your copy of THE AMERICAN FARMER, lend it to your neighbor, in order that he may see what he is missing in not becoming a regular subscriber.

FORM OF THE AMERICAN FARMER.

We have received the following letter in which the criticisms are not less valuable than the compliments, and are, perhaps, esteemed even more. We want all of our readers to take the utmost freedom in writing to us as to anything in the paper, or as to the paper itself, which they think could be improved. While we are putting forth every effort to make THE AMERICAN FARMER the very best agricultural paper in the country, we think that this can only be done by constant thought and improvement:

EDITOR AMERICAN FARMER: Permit me most respectfully to suggest that you alter the make-up of THE AMERICAN FARMER from its present to the "magazine" form of $6\frac{1}{2} \times 9\frac{1}{2}$. I have nothing but words of praise for its present appearance, but its form makes it inconvenient to hold, and quite liable to become torn and "dog-eared," with but little handling. The contents of your publication are far too valuable to be lost by the wear and tear inevitably incidental to its present wide and thin form—a form which makes it inconvenient either on the table or on library shelves—and so, less likely to get the preservative care of which it is so eminently worthy.

Kindly excuse what perhaps seems to you presumptuous interference and officiousness on my part. I quite feel you have reasons for the form of this publication—reasons resulting, probably, from experience in matters of which I have but little, if any, knowledge. But I am proud of THE AMERICAN FARMER, and so would be glad to see it clothed in a style that will wear. If I have erred in thus addressing you, it has been in judgment, not in spirit.

I believe, should you put it to vote, your subscribers would, by a large majority, declare for the magazine form, even though they might have to pay more for it in that form. All which is most respectfully submitted.—JAMES STIMSON, M. D., Watsonville, Santa Cruz Co., Cal.

We adopted the present form of THE AMERICAN FARMER after careful consideration of many things that enter in the determination of the form of a paper. This consideration referred wholly to the mechanical part of the paper. We believed that we had adopted a form which would give the most matter in the best shape. We shall continue the present form until the end of the year, and then take into consideration whether any change should be made.

"ECONOMY makes wealth," and there is no greater economy about a farm than good roads. Good roads mean less time spent in going to market and returning, and more for farm work; less time spent in repairing harness and running gear, and more to be given farm implements and the improvement of the soil; less thought as to how to circumvent mud-holes and steep grades, and more to development of stock and bettering of production. Good roads mean more of the comforts of life on the farmer's table and in his house, better profits on his products, better horses, carriages, and wagons, and a better temper and more enjoyment of life for himself and every member of his family.

THE AMERICAN FARMER is only \$1 a year.

CONSERVATISM is the bane of agriculture. The farmer in these days who neglects to read one or more agricultural publications, or participate in any farmers' convention, or to devote a certain amount of attention to experimental work, will die poor. Farming to-day is becoming a scientific vocation. Intelligent study, constant investigation, and readiness to break away from old methods are necessary to prosperity under the present condition. One great trouble with the farmer of the past has been that he has not considered it worth while to read or study with reference to his own business. To-day a successful farmer is as industrious and astudent as a successful lawyer. Prejudice against "theories and theorists" must yield to intelligent interests in every improvement which common sense suggests practicable. In fact, success on the farm to-day is synonymous with innovation and the putting away of the old methods.

If you have not a copy of the Agricultural Report issued by the Government, you should have it. It is a book which, if not an official document, would bring \$3 or \$4. See our offer on the cover, where we propose to furnish it for nothing to anyone who appreciates it. Some idea of its scope and value to every practical farmer may be gathered by reading the table of contents given in full.

SAMPLE COPIES.

We shall be glad to send sample copies of THE AMERICAN FARMER to any address that may be furnished. Those who wish to see the paper, or who want their friends to see it, will confer a favor on us by sending in requests for specimen copies, to be sent to any address they furnish.

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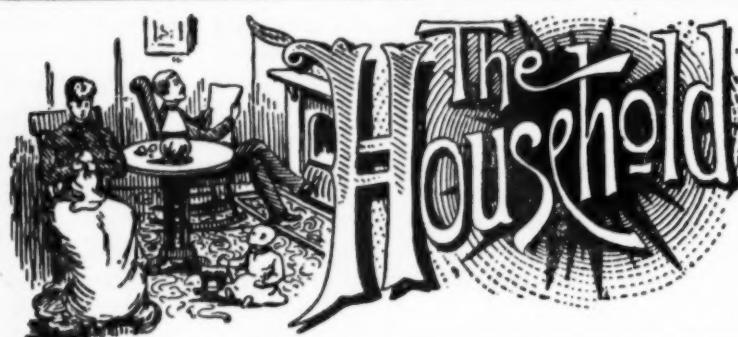
A SPECIAL OFFER.

The American Farmer for the
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In order to extend the circulation of THE AMERICAN FARMER and give a great number of people a chance to become acquainted with its many good points, we will make a special offer: We will send the paper from now until Dec. 15, 1892, for 25 cents. This is a splendid opportunity to get a vast amount of the very best reading matter for a very small sum. Do not fail to embrace it.

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Weaving.

My life is but a weaving
Between my God and me;
I may but choose the colors—
He worketh steadily.

For oft He weaveth sorrow;
And I, in foolish pride,
Forget he sees the upper,
And I the under side!

I choose my strands all golden,
And watch for woven stars;
I murmur when the pattern
Is set in blurs and mares.

I cannot yet remember
Whose hands the shuttles guide;

And that my stars are shining
Upon the upper side.

I choose my threads all crimson,
And wait for flowers to bloom,
For warp and wool to blossom
Upon the malony loom.

Full oft I seek them vainly,
And fret for them denied—

Though flowering wreaths and garlands
May deck the upper side.

My life is but a weaving
Between my God and me;
I see the seams, the tangles—
The fair designs sees He.

Then let me wait in patience
And blindness; satisfied

To make the pattern lovely
Upon the upper side.

—Florence May Alz, in *Christian at Work*.

By the Editor's Fireside.

ONE OF the most useful places in the house is the attic, or, as it used to be called, the garret; but there are none which are so liable to be abused. It is so easy, when something gives out or becomes for the time disabled, to send it into this convenient catchall, there to await future action. If only valuable things, or those which may be made valuable, were thus stowed away, it would not so much matter; but often members of the family lumber up the place with articles which can be of no possible use hereafter, or, at least, whose future service is very doubtful. In this way there gathers quantities of old rubbish which either lies there to collect dust, to be devoured inch by inch by insects, or to be handled over by the weary housewife season after season to be kept in order.

A very much better way is to throw out or burn up what can be of no use to anybody, and is only retained for the good it has done. If there is anything that has had its day in one's own house, the wise way is to give it to someone who needs it and to whom, often, it proves a godsend. Put away in this "catchall" only what you are almost positive can be made of service in some way to the family in days to come. Put them away, however, in good order; that is, if it is a garment half-worn, rip it up, throw the useless parts into the rag barrel, brush the remainder carefully, and roll it into a compact bundle to be placed with other articles of the same kind. Then you will know just where to find it when needed. One of the difficulties of indiscriminate stowing away of half-worn articles is that when they might be used so much is to be done to make them ready that often, if remembered and found, there is no time for the necessary preparation, and something else takes its place.

Not only is it wisdom not to put away garments without caring for them in this way, but broken furniture should come under the same law. If it is to be used at all, have it repaired as soon as possible, and get the wear out of it at once. If it is not needed, then make someone happy by its possession who has just the place it will fill, but who is not able to buy new.

Above all things, do not stow away ornaments or soiled house decorations because you are tired of them and will supply their places with something fresh and seasonable. There is absolutely nothing more forlorn than this sort of thing; nothing more utterly useless. It is only gathering other articles to be handled over, using up just so much energy for no possible good. If their beauty is gone, throw them away; if you are simply tired of them, and they are still ornamental, give them away.

I remember hearing not long ago of a cleaning-out of one of these garret chambers. The mistress had lived in the same house a lifetime. Thrifty and economical in her habits, she could not bear to throw anything away, and the consequence was that this room was filled with odds and ends of all kinds, such as would accumulate in so many years. When she passed into the beyond, there was no one who cared for these things, or who could use them. In fact, the greater part was utterly useless. Load after load was taken out and thrown into the river which ran near by. It was a melancholy thing to think of how many hours she had spent in handling over these things, and not only hours, but strength and energy which she could little afford. I do not doubt but there is many another garret filled precisely as this one was among the readers of THE AMERICAN FARMER.

Just as much order should be employed in this room of the house as in any other. So far as is possible put things which are of the same character together; that is, trunks in one place, boxes in another, broken furniture in another, and so on. And right here let me give a caution about trunks, and that is always to have the key of each one tied to it; and if there is a leather strap belonging to any one of them put that inside, so that it is ready without a long hunt and confusion of thought when the trunk is needed. Put the empty boxes that may be required for some purpose together in another place. Near them lay papers which may have been preserved as wrappers to be used again. This will save you a long hunt perhaps when you want to send something away by messenger or express. In another place put the odds and ends which you may want to use in repairing, such as nails, screws, etc.; while the tools employed for domestic carpentry should also be kept together here in a box or basket, unless there is some more convenient place down stairs.

It is always well to have shelves put up in the garret, and also nails or hooks for the hanging of garments out of the way during the Summer or Winter which you do not desire to pack. Even dresses and outside garments of value can be kept here if, after being well-cleaned or beaten and the dust out of them, they are inclosed in old muslin, and then wrapped closely in newspapers. The latter, by the way, is an almost sure protective against the inroads of moths and other destroyers of clothing. Upon each article should be pinned a label, so that they can be easily distinguished one from another.

If the attic is thus kept in order, there will still remain room for the little folks to play in upon rainy days, and what a delight that is to them! I well remember the keen enjoyment of my childhood's days spent in the roomy attic of my grandmother's home. It was, indeed, to me a wonderful place, and the games with my little playmates there are a delight to remember to-day.

The Editor Gives Some Hints About Buying and Making Dresses.

Perhaps there was never a time when, aside from dressmaker's bills, pretty and tasteful dresses could be made at such small expense. The goods themselves come in great varieties and very cheap; still the styles require small quantities, and combinations can also be made of old materials that are very successful as to results. Speaking of dress goods, light materials that look so pretty and cool can be purchased for mere song. Challies, with bright figures, flowers in graceful garlands upon softly shaded groundworks, are possible at prices varying from a shilling a yard to 30 or 40 cents, and even higher. But the low-priced ones are really very pretty and desirable, and many of them will wash. Then, there are the lovely satin-striped ginghams, if one wants to pay the extra price for a cotton dress. These are so fine and of such soft colors as to be almost, if not quite, as pretty as many of the silks. Without the satin stripes, very pretty ginghams can be purchased for 15 or 20 cents a yard. Of course, there are those which are even cheaper, although not always to be recommended for wear and for washing. There are other cotton goods of an almost infinite variety, including the pretty batistes, linen lawns, and the old-fashioned muslins, which have again come into vogue. The wash China, India, and surah silks are very serviceable, and make lovely dresses.

It is now the season of the year for those who live in or near large towns to purchase goods that they will need another season, far below the cost in the early Summer. It is quite the custom for merchants to put down all their Summer dress goods after the Fourth of July has passed. The people who are not determined to have the very latest style will find it greatly to their benefit to buy what they will need, and put it away until the proper time for making comes around again. It is by no means recommended, however, that because goods are so cheap things which one is in doubt about needing be bought to lay away. Often, by so doing, they are left, perhaps, for two or three years, until they are out of style, or, at least are not what the buyer desires. It is only when one absolutely knows what will be necessary in the coming season that it is best to buy in advance.

All kinds of shirt-waists and blazers are exceedingly popular this season, and they are great helps in piecing out a limited wardrobe. If they fit neatly, and are made in good style and of pretty material, they look well upon most people. These waists may be made of cotton goods—batistes are very pretty, the wash silks or thin flannel; a pretty belt or bodice is worn with them.

The skirts of dresses are still made close to the hips, and laid in plaits at the back. Most of them are entirely too long for comfort and cleanliness. Those made for wear in the country are often short enough to escape the ground, and therefore country people may have theirs made in this wise, and still be in fashion.

One of the most popular trimmings for the Summer is lace. Anyone who has a fine store of old lace is very fortunate; but if not, there are very many varieties

that are admirable imitations of the more expensive, and can be purchased for a very small sum. Lace gives a softening effect that is possible with no other kind of trimming.

The edges of skirts are trimmed in various ways. Lace flounces looped up with ribbons, flounces with standing ruffles and different kinds of edgings, milliner's folds of silk, satin or velvet arranged in groups, drooping puffs, all these and many more are employed upon the otherwise plain skirts. Ribbons are used extensively, put on in various ways. Sometimes they are of two or three shades, and slightly gathered in the form of ruffles, one above another, around the bottom. Narrow bias ruffles are also quite popular, three in number. Still other dresses are made with a broad hem, the edge being protected by an invisible braid. It must be remembered that all trimmings for the bottom of the skirts are narrow, unless it be the lace flounces.

ODDS AND ENDS

Of Useful Information for the Household.

Someone desires to know how to make a heliotrope sachet. It is exceedingly fragrant, and the odor is exactly like the flower from which it takes its name. In the *Art Folio* I find the following recipe: Powdered orris, two pounds; rose leaves, ground, one pound; tonka beans, ground, one-half pound; vanilla beans, one-quarter pound; ground musk, one-quarter ounce; attar of almonds, five drops. Mix it all together, sift through a coarse sieve, and it is ready for use. Of course half or one-quarter of this quantity can be made, using the same proportions.

* * *

A suggestion is made which is worth remembering by all flower-growers. Take an old umbrella, strip off its cover and put it firmly in the ground for vines which do not climb high to run over, such as sweet peas, nasturtiums, and the eypress. A cord tied from end to end is desirable.

* * *

A pretty shade for a standing lamp may be made of three shades of crepe tissue paper, cut in graded widths, and placed one above the other. Whether the dark or light is placed at the bottom depends upon the taste of the maker. Then paste the sides together and put over a wire frame. Draw the paper in at the neck, and hold it in place with a wire, over which tie a broad satin ribbon, having a full bow at the side. Pull the edges out with the fingers at the top and bottom, so as to make a sort of frill.

* * *

Light dresses are very apt to become stained in the Summer, and it is necessary to use some care to take the stains out before washing. Coffee stains are often exceedingly obstinate, while being very common upon linen. These may usually be removed by moistening the spots and holding them over the fumes of sulphur, a small piece of which may be placed in an iron vessel. If the spot is very small, two or three burning sulphur matches may be sufficient to give the fumes necessary. Then wash the stained parts carefully in water that contains a little soda or ammonia, and rinse them carefully. Fruit juice may be removed usually by immediately washing in hot water, to which a little soda has been added. If the stains are very obstinate, fill a vessel with boiling water and hold the article over it, allowing the stain to become thoroughly saturated with the steam. Then, while in this position, rub salts of lemon upon it until the stain disappears. Put it in hot water again, and let it soak. Another way is to dip the stained part in a weak solution of chloride of lime, and then wash it thoroughly in cold water. It must not be allowed to remain long in the solution.

* * *

The following are a few rules of etiquette, which are in answer to questions asked. When walking with a gentleman, a lady always takes the inside of the promenade. A lady does not ask a gentleman to call upon her, unless he intimates a desire to do so. Of course, an exception might be made in the case of a friend or relative of some intimate friend. Even then, he should be the one to ask permission. When a gentleman offers a lady his arm, it is not necessary for her to make a reply if she accepts it. In dancing, the lady makes the first movement to stop. Upon being thanked for a dance, she simply smiles and bows. It is bad form for a lady to dance several times during the evening with the same gentleman unless he is her affianced husband. A young girl should not receive calls from gentlemen before she is introduced into society.

THE ART OF SEWING.

The Editor Chats About It, and Mending.

II.

Skill in mending is something of which no woman need be ashamed. It is, in fact, a source of money-saving and sometimes of money-getting. Whoever is able to close a rent in a garment so that to the careless eye it may be unseen is able to save the article to the wearer for a long time. Indeed, often where the needle may not be used for any other purpose, its accomplished welding in this direction is invaluable.

What always makes a large share of work in this direction is the stockings of the family. People differ much in the way in which they wear their hose; that is,

some will put on a new pair, and after a day's wearing a hole will be found in heel or toe, and that result is invariable. Probably it is because of some unequal way of stepping. Because this work, however, is always to be done, special mending materials are bought and kept in the mending basket. Among the best for cotton stockings is what are called Balbriggan skeins of a deep cream shade, and untwisted so that it can be used in any number of threads. Everybody knows about the egg or gourd-shaped darners, and many people feel that they cannot darn without them. The only trouble with them is that in pulling the stocking over, the hole is apt to be enlarged, unless great care is exercised. Some people prefer darning on the right side, instead of the wrong, believing that the work looks smoother.

Of course, children's stockings are always out of repair, as well as all other articles of their clothing. The only way to keep them whole, is to darn each small hole, especially in the legs where the stitches ravel so quickly, as soon as possible. The wear upon children's stockings is very nearly even all over, so that it does little good to line any one part. The best way is to get a good stocking of somewhat heavy weave and then keep close watch of them. In fact, cheap stockings are really an extravagance.

Grown-up stockings can sometimes be lined at the heel and toe with advantage, although now it is possible to buy those which are already double at those places. If they are not so strengthened in making, a lining of soft flannel may be put in, if it is done carefully. There must be no overlapping seams, nor should the edges of the flannel be turned under. Let the lining go well up on the heel where the shoes work up and down, then catch the edges down smoothly and firmly with thread of the same color as the stocking. The stitches will then be unnoticeable. This lining should be put in before the stocking is worn at all. Some people run the heels with darning cotton, but it must be done both with the weaving and across it to be effective, and it is stiffer and far more likely to hurt the heel than the lining recommended.

Besides the balls and cards of cotton-mending materials, the Saxony wool is necessary for the darning of merino or wool stockings, using for the heavier the three threaded, and for the finer the two. Sometimes, where great strength is needed, Scotch yarn, which is very durable, though coarse, may be used. For silk hose, knitting silk is the best. I want to repeat that the only way to keep stockings in good order and to make them wear is to watch them and mend every little hole as soon as it appears.

Right here I want to say one thing which, doubtless, some of you will disagree with until after trying the experiment, and that is changing socks or stockings every day, or every other day, will save a great deal of mending. Of course some will at once object because of the amount of washing this will make; but when you consider that they are soiled but very little and rarely stained at all, it will be evident that the labor is really less, it lying more in handling so many pieces than in the real work of rubbing. Besides the advantage of less mending, this frequent changing of the hose is cleanly and healthful, and I have heard it said that cases of undue amount of perspiration could be cured, or at least made much better, by this frequent putting on of clean stockings.

Many people make one mistake in the name of economy, which needs a protest, and that is mending cotton garments when they are so much worn as to require almost making over. The thrifty housewife may be sure that when an article requires this amount of repair it is beyond value, for it will at once tear out again, and the same place must again be gone over. It really is a wear and tear upon the mender that is absolutely needless, and does not in any way repay the trouble.

One of the most difficult things to mend is torn buttonholes, and where there are children, these are very numerous. Baste a small piece of cloth, double, under the torn end. Draw the buttonhole in shape, and stitch across the tear back and forth several times on the machine; or, if you do not wish to use the machine, pass the thread back and forth from side to side a number of times, and then buttonhole closely and carefully over that. Cut out the superfluous cloth before beginning to rework the buttonhole.

In making children's dresses it is well to have two pairs of sleeves, because one pair is always sure to be worn before the dress gives out in other parts. A very good thing to do is to double-line the under parts from the elbow to the wrists, where the wear comes. It is necessary to put this in very carefully and smoothly, fastening it to the main lining. When this is done, and a slight break appears, it can be darned down without having the trouble of slipping a piece in. The same thing may be done with the part directly under the arm. I would advise the purchasing always of enough cloth for the extra pair of sleeves, even though at the time it seems useless expenditure.

The best cloth for children's wear is always a plaid goods, because rents may be more easily repaired. When these come, the edges should be drawn smoothly together and basted upon a piece of cloth like the dress, if possible; at any rate, of the same color, and then darn it finely back and forth onto the under cloth. If possible, use ravellings of the same material; if not, a fine silk or cotton of the same color, but be careful to have this of the best make, because if it should fade it will show badly. There is something which now comes to put under rents which are straight that will draw and hold them together without darning. If the goods does not ravel easily this is very effective. It is a preparation of some sort of mucilage upon cloth, and is laid under the rent, and then a hot iron placed upon it, either directly upon the goods or with a thin cloth over it, if there is danger of changing the color. This causes the edges of the rent to stick fast to this under piece, and closes it so firmly and deftly that it is visible only upon very careful examination. Where the tear has been made crooked with the threads pulled out in a way which is almost maddening to the mender, it is often the best

thing to cut the piece out entirely and to insert a new one, matching the plaids exactly, and then pressing it down carefully after it is finished. The work requires to be done very ^{carefully} at the corners. If the new piece will show too much, part of its ~~fringe~~ ^{fringe} may be taken off by washing it and pressing it out, so that it seems to have ~~been~~ ^{been} somewhat worn. Of course, it is not possible always to make these rents invisible, but neat darning is much more respectable, as well as economical, than the tear left without attention.

And let me add right here that dresses for little girls are much better made with tucks for trimming than ruffles. They are not so hard to put in order if torn, and can often be changed so as to cover an unsightly rent.

For the Home Table.

CREAMED OYSTERS.

Put one quart of oysters in a kettle and cover with cold water. Let them just come to a boil, then draw off the water. Make a sauce of one tumbler of milk or cream, two tablespoonfuls of flour, three tablespoonfuls of butter, and salt and pepper to the taste. Pour this sauce over the oysters, and, if liked, serve on toast.

SUBSTITUTE FOR CREAM.

Heat one-half pint of milk, then moisten one tablespoonful of corn starch in a little cold milk; add it to the hot milk and cook five minutes. Beat the yolks of two eggs and add to the mixture; take at once from the fire and turn it out to cool. It should be about the consistency of cream.

RICE BALLS.

Put a half cupful of rice into one pint of milk, cook in a double boiler until the rice has entirely absorbed the milk. Add a half teaspoonful of salt, a little pepper, about five drops of onion juice, and the yolk of one egg. Mix and turn out to cool. Make in balls, dip in egg, then in cracker dust, and fry in hot lard.

RASPBERRY TAPIOCA PUDDING.

Take one-half cupful of tapioca and crush as fine as possible on a molding board with a rolling pin; then soak in one and one-half cupfuls of cold water for three hours, or longer, if possible. It is better to soak over night. Put in a double boiler and cook until perfectly clear. If only soaked three hours it will take an hour and a half. If over night, it will cook in half an hour. When clear, add one-half cupful of sugar, one-half teaspoonful of salt, one tablespoonful of lemon juice, then take from the fire and stir in one quart of raspberries. Rinse a bowl with cold water and pour the pudding in and set away to cool. Serve with whipped or plain cream, as may be desired.

WORK FOR BUSY FINGERS.

Pretty Things for Gifts or Home Decoration.

POKER HOLDER.

Take a section of dark-blue cloth, or silk, or cashmere, six inches square; line with two thicknesses of Canton flannel. Bind the edges with dark-blue ribbon, and along the edge close to the binding do some fancy stitching with gold-colored embroidery silk. In the center embroider the words, "Ye Fireside Companion." Fasten a loop of ribbon to one corner to suspend it by.

POWDER PUFF.

A pretty and convenient powder puff may be made by crocheting of white Saxony, in single crochet stitch, two little flat mats three inches in diameter. Make a round, flat bag of thin, white flannel, the same size of the mats, and fill it with the best powder. Place a mat upon each side of the bag, and join by crocheting a pretty border of about one-half inch in width, using colored Saxony. A very narrow ribbon may be run through one side of the puff, one or two rows from the border, and tied in a pretty bow, thus indicating the right side. These little articles are useful when traveling with a baby, and indeed are preferable to a box of powder in any case, as there is no danger of waste or spilling, and sufficient powder sifts through when using the bag in the same manner as one could a puff.

FAN BAG.

Take one yard of white gros-grain ribbon four inches in width. Embroider this with scattered violets, and overhand the edges neatly together, making a bag one-half yard in depth. Turn down at the top a hem an inch and a half wide and make a casing, through which run a narrow violet ribbon to suspend the bag.

PANSY BUREAU COVER.

Take a piece of bolting cloth of the required size; on this embroider pansies in different shades; put this over a foundation of yellow, either silk, cheese cloth or silesia, as you choose. Finish the edge with lace, through which run yellow silk. Make the cover for the pin cushion in the same way. Put over yellow and finish with lace.

CHEESE DOILY.

Take a piece of linen 10 inches square, buttonhole all around with white embroidery silk. In three corners work scattered daisies with white filolette, making the centers with yellow French knots. In the fourth corner work the word "Cheese" in Japanese lettering, outlining the letters with white silk filled in with yellow French knots.

TABLE COVER.

Take a square of fine, white linen of the size desired for the table. Make a hem from three to five inches in depth and hemstitch. Have sprays of apple blossoms stamped upon it with falling leaves. Work the blossoms with white and pink silk, with gray silk shading where the petals would be in shadow. Work the leaves in three shades of pale green, and the stems in three shades of wood color. The falling leaves are of course to be worked with the white, pink, and gray silks. Around the cover put a finish of pretty lace, very slightly fulled, on at the corners.

SOUVENIR SPOON CASE.

A case to hold half a dozen souvenir spoons is made by taking a piece of chamois skin, 12 by eight inches. Pink the edges, and across the eight-inch side put two stripes of chamois, pinked on each edge an inch apart. Make divisions at regular intervals by catching the strips down with bright silk twist, so as to hold the spoons in place. Paint the names of the cities where the spoons came from with gold paint over each spoon in fancy letterings. Decorate the outside with irregular lines, discs, etc. Fold the case together, and midway on each side punch a hole through both thicknesses of chamois, through which run a small gold cord finished with gold tassels to tie the case together.

BUREAU SACHET.

Cut two pieces of light-blue cheese cloth to fit the bureau drawer. Put a layer of cotton batting between them, sprinkled with satchet powder. Tuft with a darker shade of blue baby ribbon. Make pockets around the ends; on one embroider the word, "Gloves," on the other, "Handkerchiefs," with blue embroidery silk of the shade of the baby ribbon. Powder the pockets over with small flowers of the deep blue. Baste down the four edges of the satchet, including the pockets, and feather stitch the edges with the deep blue embroidery silk. When finished take out the basting thread.

Some Household Pests.

I was reading an article not long ago that gave great pleasure to the blood-thirsty part of my nature. Not that it contemplated the murder of human beings who had incurred my displeasure, but it told the story of the pitting of one household pest against another, and that other the one which is the greatest terror to the housekeeper and challenges her energies to get rid of. I refer to what we sometimes hesitate to mention to ears polite, namely, bedbugs, their enemy being the little red ant. I was not aware until then, and I think many of THE AMERICAN FARMER's readers may be also ignorant of the fact that these little creatures will fight and destroy bedbugs wherever they can be found, and it was stated that the two rarely, if ever, exist in the same house. The ants attack the bugs, swarming over them in countless numbers, pulling them to pieces without mercy and carrying away the bodies to destroy at their leisure. I never saw this operation, but take the statement of the Government entomologist.

I know that the thrifty housekeeper who has passed through a series of struggles with the bedbug pest will say that care and cleanliness are all that is necessary to keep a house free from their inroads; yet it is a fact that there are few who are not sometimes invaded. They are brought in perhaps one or two at a time in the most unforeseen manner, and then, under certain conditions of food and warmth, how they multiply! If these conditions are wanting, they will sometimes remain alive for more than a year without food; and it has been demonstrated that after many months of freedom from the pest they have suddenly made their appearance again through some change which has warmed into life a stray one or two that had escaped destruction.

There are numerous poisons and any number of recipes given for the dislodgment of these pestiferous insects. Sometimes it seems impossible to find anything that shall be thoroughly effectual; but I think there is little doubt that benzine is the strongest weapon. Used without stint, wherever it penetrates it is sure death to the bug in all its stages, including the egg. A hand atomizer is a great assistant in this work; and it will sometimes be found a most excellent thing to use quicksilver first and benzine afterward. Something with which to paint cracks is recommended, as follows: One ounce of corrosive sublimate, one-half pint of alcohol, and one-quarter of a pint of spirits of turpentine. This mixture should, however, be only used and cared for by the housekeeper, as it is such a deadly poison, and indeed I think the quicksilver is quite as effectual.

The red ant pest is less easily destroyed even than the bedbugs, unless the nests are outside, where they can be reached. Then a little kerosene or bi-sulphide of carbon will do the work of destruction without failure. If, however, they are in the house, where they cannot be easily reached, there is practically no cure. The best thing that is recommended in such cases is placing small bits of sponge moistened with sweetened water in the places where they most congregate. The tiny insects will gather in these, and then they must be taken each day or two and put into hot water until they are cleaned out, when they must be replaced.

Vigilance, constant and never ceasing war so long as they are present, can only procure freedom.



SHEEP AND WOOL.

Shearings.

Scientific farming? Yes, and scientific sheep culture.

The old formula was pedigree, wool, and wrinkles thrown in.

The issue of Springer's free wool bill unites the 4,000,000 voters in self-defense.

It is plain now that mutton wool and increased fertility of the soil is the sum total of the sheep industry.

A greater value of mutton and wool can be obtained from a given area of land and less outlay of capital than from beef.

The National favor of the merino has been deserved; whether it can hold its place or not is now the plain issue. Will breeders give it mutton character?

Hiram Sibley, of Rochester, N. Y., who made much money in early life upon a farm, once said there never was a dollar made fattening an animal. If you make any money, it must be on growth, and not on fat.

The sheep-shearing machine recently mentioned by a foreign correspondent of THE AMERICAN FARMER as having been used in Australia is not an American invention, and has not met with much favor in this country. Reports from users of this machine show that it gives satisfaction, and there is really less danger of cutting the sheep than in the case of hand-shearing.

Pasturing with sheep is the only certain way of getting rid of the ox-eye daisy. These animals have a liking for the leaves and flowers, and will quickly exterminate it. It has been propagated by sowing the seeds with grass or clover. It ripens at the same time as these, and grows mostly in meadows. Thus the first effort to prevent it is to sow only perfectly pure seed.

An old sheep raiser who thinks he knows a good thing said: "If I was going to raise sheep it would be in lower Virginia or Maryland. It would be for mutton, and with the use of ensilage. I would buy common ewes and a Dorset ram and raise lambs; the ewe lambs would be retained for breeding. In three years I would furnish two crops of lambs a year for the Washington or Baltimore epicures. The feeding of sheep would be a part of the business of the farm. No commercial fertilizers would be used after the first year."

A test was recently conducted as to the relative value of sliced sugar beets and corn ensilage for feeding purposes. Either is very good to feed to young lambs, but the beets should have the preference. According to the statement of the Michigan station the proportion is shown in the average gain per week. The lambs fed on the beets averaged three pounds gain a week, while those fed on ensilage gained two and one-half pounds per week. At the end of the 12th week the beet-fed lambs averaged 36 pounds, and the silage-fed 30 pounds. Clover hay, oats, and bran were fed to the lambs in addition to the beets and silage.

British Breeds of Sheep in the United States.

It is said the English sheep raiser has three main points to work for—mutton of the best quality, and all he can get in one carcass; a thick fleece of good wool, and fecundity.

A well-informed man believes "there are just as good sheep bred here as in any part of the world. Still, the imported animal is very apt to be a first-class animal, for the importer must select the best or suffer the consequences. It is possible to find poor sheep in England as it is to find poor sheep here. But there is no sort of necessity for looking for imported sheep in order to get good sheep."

Still, this importing business goes on. There is something significant in all this, since it is only British breeds that require it. The Spanish merino breeders did not have to do so, and within 50 years from the date of the first importation of these sheep it was found Vermont had the best merinos in the world.

It is believed that the earlier importations of British sheep were badly selected—rascally selected—as they could be bought cheap in England and would sell high here because they were imported. This may have been true; but is there not just as much necessity for importing new blood to keep up the standard of the flocks now as there was 50 years ago? Are not importers as honest now as they were formerly? Finally, is not something wrong about something; and is this dependence to last forever? THE AMERICAN FARMER insists upon it that there is no sense, after half a century and so much money has been spent, not to mention disappointments, to try to grow sheep to an English standard. There should have been a cutting loose from English ideas and a setting up of an American standard long ago. The Spanish merino breeders did this and beat all creation in producing a practical fine wool sheep.

The Secretary of Agriculture did a good thing in requiring all sheep that are imported for breeding purposes to be registered in some record association. This official indorsement must shut out grades and scrubs. It is a good ruling, and shows the interest the Government has in our sheep industry; in the improvement of breeds. It may be necessary to not only prevent importations of inferior sheep but to secure official information of the conditions that created and must maintain each of these breeds. If it is found that present precautions are insufficient it is reasonable to suppose it will be done.

Returning to the conclusion "that there is no sort of necessity for looking for imported sheep in order to get good sheep," let us consider, if the "presumptions" are correct, that the breeders of the United States have been importing British sheep for 272 years, and paying high prices to the importers, and often fabulous prices to English breeders. No doubt the very best animals have been brought here, and still the rush for "imported sheep" goes on with as much spirit as if it were a new enterprise with "millions in it." Thanks to American skill and stubborn independence, there are as useful Cotswolds, Leicesters, and Lincolns, not to mention the excellence

of the Downs, as can be found anywhere.

We shall watch with interest the verdict at the World's Fair on this question. It is time for an American educated experience to give direct, permanent results.

Effects of Impressions During Pregnancy.

The influence of impressions upon females during pregnancy have been recognized from the earliest period of history. It was the means used by Jacob to modify the flocks of Laban and even up with the tricky old gentleman. The sheep of that period were black, but by the placing of white rods in "the watering troughs where the flocks came to drink, that they should conceive when they came to drink," the change in color began that resulted in the white sheep, as we now have them.

It is true that a black sheep has been known to affect a flock of breeding ewes that had never seen a black sheep, so greatly by fear, that a large part of their lambs were black, though served by a pure white ram.

In Vermont, when sheep fed at haystacks and in rude sheds that offered cover for skunks, there were lambs marked as the skunk, and were called "skunk-lambs." With the completeness of barns found there now, although skunks are still around, the ewes do not come in contact with them, as formerly, and skunk-lambs are exceedingly rare.

Lambs have shown goat characteristics that could be traced definitely to fright by a strange goat straying into the yard at time of conception.

The otter breed of sheep—a novelty produced about the close of the last century in Massachusetts—was from seeing an otter at the early period of pregnancy.

Salt and Ashes for Sheep.

A merino stud-flock breeder writes: "One year I had more rams than I had pasture for, and a small paddock had to be made go as far as it could. There was just about grass enough to keep all the corn the rams could eat from hurting them. The paddock was convenient to the house. The wood ashes were placed in the hilly paddock in about a dozen piles as they were made each day. These piles were salted every day, and twice a day liberal rations of shelled corn were fed on these piles of ashes. I never had a party of rams do so well. The gadfly failed to get in its work, though it was an old sheep pasture, and the flies were plentiful. The young grubs were never able to pass up into the herds. The ashes was their dead-line. The trick was new to me, but it was just what was wanted to head off the gadfly. It is still practiced in my flock with care."

Lambs and boys can find more fun in making a noise than any other animals in the world. A pile of loose boards that is not too high to jump off and on pleases them. A spring board six inches high at one end and two feet at the other never fails to entertain a rollicking lot of lambs, and is a sight no one tires of seeing. It is a sort of circus worth getting up.

Catch Crops for Sheep Raisers.

The value of catch crops—crops grown out of the regular rotation practiced on the farm—cannot be estimated too highly in sheep raising. The cost of keeping sheep must be reduced to a minimum; the better development may be secured in less time; a higher-priced wool and mutton may be obtained by the bountiful supply of choice, cheap food, that may in no way interfere with regular crops. The lands do and should grow plants to shade the ground. It might as well be food plants as weeds, many of which are not suited, though eaten, to the best results in sheep culture.

Without showing the relative value of plants, a list of catch crops might be suggestive to those who are interested. Corn, wheat, and oats—the usual farm crops—may be profitably used as catch crops, but are not so used as often as turnips, rape, beets, beans, peas, kale, millet, Hungarian sorghum, pumpkins, squashes, scarlet clover, and a whole lot of other plants that we could name. A little forethought, a little expense and labor, could not be better employed. Under our present crop systems the food fed to sheep costs too much money. We feed cash products when we might use foods that grow as cheap as weeds.

The thinking, enterprising sheep raiser will see to it that experiments be begun and systems of catch crops be formulated as suit the situation and wants of the flock. Farm economies in the direction of food crops only to be used on the farm have not been studied.

The impression is that if corn, oats, and hay—cash products—cannot be turned into wool at a profit, then wool growing is unprofitable. This is partly true in some localities, but crop economies may be useful.

The Angora Goat Industry.

"Mr. Bailey, of San Jose, Cal., who has been visiting Washington in the hope of stirring our Government up to some activity in promoting the Angora goat industry, is on his way home, pretty well satisfied with the results of his efforts. By Secretary Rusk's advice, the breeder whom Mr. Bailey represents will give up their attempts to pass the bill introduced by Mr. Hermann, of Oregon, calling for an appropriation of \$35,000 to set the Government up in the goat business. In consideration of this, Mr. Rusk will probably work through Secretary Foster and try and induce Turkey to permit our breeders to buy 200 or 300 choice animals with our own money. Mr. Bailey now owns 10,000 Angoras, 1,000 of them full-blooded, and all sprung from an original importation of four. There have been no importations from Turkey during the last 10 years, and the need of fresh blood is beginning to be seriously felt. It appears from the statistics gathered that the Angora goat industry now exists in 30 States and all the Territories. Six hundred thousand pounds of mohair a year are raised here, supplying fine plumes for the Pullman Car Company and other large consumers, and yet the industry is still in its infancy, and we import 10 pounds of mohair for every pound we produce."

Early and Late Lambing.

Sheep raising as a business is dependent upon forethought and calculation. There are certain principles to be observed and carried out, and these constitute systematic sheep husbandry.

The breeding season will soon be here again, and it would be well to carefully arrange for next year's lamb crop. Presuming that this subject has been thought out so far as purposes and the means to secure the ends sought, the intention of this paper will be to discuss the propriety and feasibility of breeding for early or late lambs. Much must depend upon climate, the artificial preparations in the way of adequate shelter, proper food supplies, the Winter management of the ewes, the breed somewhat, and the industry and sagacity of the shepherd.

To the man who gives his efforts to raising Spring or house lambs, the question of early breeding is all-important. The stud-flock breeder finds an advantage in breeding early, and uses the utmost precautions that every lamb shall have the attention necessary to its welfare and thrift.

The average sheep raiser and wool grower who makes the flock a secondary consideration on the farm, who does not expect to lose any sheep nor to sleep in the sheep barn during lambing time, whose preparations for saving the lambs are poor, and who expects to trust to "luck and Providence," to such the question has vital importance.

There are arguments and advantages on both sides of this question. Where the climate is liable to variations and storms that a new-born lamb would perish, unless wise preparations for its safety were made, the conclusion for Winter lambs is improvident, cruel, and criminal. Where food rations and some pasture are secured and possible that favor the healthy and indispensable supplies of milk, much of the losses and anxieties of this critical period will be relieved. No period in the handling of flocks can compare with lambing under unfavorable and adverse circumstances, as can be referred to by any experienced and anxious shepherd. Nothing can compare with the worry of a man who has been caught by misfortunes at a time when cold storms prevail, lambs coming, and a lot of ewes without milk.

There is more time on the farm to give to the flock in early Spring or late Winter than later on. An early lamb that survives gets a big send off when grass comes, goes through the Fall, and passes the weaning period in better shape than a late lamb. As sheep are ordinarily handled after they are returned to pasture, a March lamb will be worth two or three June lambs in the Fall after they are weaned. Lambs that come after the ewes are sheared and on pasture give very little anxiety to the shepherd. Under such favorable circumstances very few losses need occur.

Late lambs that are pushed from weaning to weaning may be expected to enter sheephood in excellent shape, and with uniform certainty of making good, useful sheep. Late lambs, though, that are subjected to short feed and starvation, become stunted, and cannot resist the sure attacks of parasites, and often die in the Fall and Winter. Such lambs are a shame and loss to the farmer.

In Illinois it was a good rule to breed the flock after Nov. 3. The lambs began to come April 3, when the weather was usually more settled than earlier. "Circumstances alter cases," and the flock owner must be governed by experience and circumstances that favor the safety and convenience of his case.

An Experience—What Was the Matter?

An Illinois correspondent writes: "A healthy, vigorous flock of sheep were removed to a new place on the Ozark hills. They were pastured in an old field where there was a variety of grasses, weeds, briars, brush and shade. Water was from a pond. This old field was what was known in that region as a sink, into which the water from some 2,000 acres of land in a wet time found an outlet. The water found its way through the porous soil in the center of the flooded sink in from one to three days. No sheep had been kept on this farm for some years, nor on the contiguous lands. These lands were supposed to be healthy, but the sheep, after two months, during which they seemed to do very well, began to loose condition and go down rapidly. Without any experience in such a disease, and no veterinary in reach, the sheep began to die, and kept it up for a year. Symptoms: Collections of water under the jaws, the heads of some seemed all puffed, and signs of jaundice were common. After a rain the bottom of the sink would be covered with millions of small snails. Blackbirds by hundreds would come and eat these snails. No snails were noticed at the first, and none are to be seen after a rain now. The sheep were removed to a higher pasture, and the few that lived are now doing well. There was noticeable from the first occupation of the farm an unusually large number of rabbits on the place. Within two years from the time the sheep began to die the rabbits died in great numbers, and hardly a rabbit is seen now on the whole farm, though there are plenty a mile or two away from the farm. The inquiry is, what ailed these sheep, and did the snails and rabbits have anything to do with the disease that caused the malady with the sheep?"

The Mutton of Necessity.

"The Leicester, Lincoln, and the Cotswold furnish a mutton esteemed by hard-working people, and gives a gravy that seasons the coarse fare that nourishes the family. The mutton of luxury is more select in fineness of grain, delicate, and exquisite in flavor, and chooses the Highland black-face, the Southdown or the Welsh mountain breeds; so much so, that the demand for these smaller animals is so great as to make the smaller weight of more absolute value than the larger."

The author from which the above was gathered continues: "The internal formation of fat is the first process in all the English sheep. A network of fat is first formed which envelopes the intestines and another mass accumulates on the kidneys. Thus it begins to be deposited on the rump, and the first symptoms are the sides of the rump rising so that the backbone cannot be felt. They begin to be cloven. This progresses gradually on the back until the backbone is lost, and

instead of the protuberant bones there is a crevice along the line of the back to the shoulder, or possibly to the juncture of the neck. Then it begins to be accumulated on the sides and proceeds toward the flanks and forms on the breast, shoulders, and brisket, thus showing how gradually the whole tendencies of the sheep, in all climes, are brought out to make a fat mutton English, or, rather, British sheep. When all this is accomplished the sheep is fat or prime."

It will be seen that there is a point of ripeness, a period when further feeding cannot be profitable to the feeder—a point when the sheep is at its best, and if extended must be without gain. This point of ripeness is more understood in fat cattle and more wisely guarded than in sheep-feeding in this country. Overripe mutton has the same objection with butchers and consumers as overfat beef.

Sheep Peltries.

In Wallachia and Hungary the Cretan sheep was raised for its lamb skins, which were valuable in the market as peltries. Whether this beauty of the wool was natural or due to the art of man is not known. With the Mongol Tartars, lamb skins were a specialty, since they were more valuable than any of the furs except the sable. To cultivate the naturally curly, undulating character of the lamb's wool, they "covered the lamb with a linen coat tied close about the body. This they water frequently with warm water, and loose it occasionally, as the lamb increases in size. When the pelt attains the highest state of perfection the lamb is killed for its pelt." It would seem there is a hint in this worth trying in this country. Such sheep skins known to the trade as furs are becoming more and more fashionable with wealthy American ladies all the time, and probably they are largely imported from other countries.

The immense demand for lamb mutton in every part of the United States might utilize the dressed carcass and afford a double advantage to lamb raisers in the cultivation of peltries. Just at what age this desirable "perfection" might be attained can only be learned by experience and critical observation and information to be obtained from the trade; but that there is profit in it that American lamb raisers can secure there can be no question. A lamb is fit for the table at a month old; no doubt they are used at a much younger age.

We hope to obtain the opinions of others on this subject. There must not be omitted a single use or profit from the flock by the American sheep raiser.

Rambouillet Wool.

J. Leroy Davis, Oakland County, Mich., sends a beautiful sample of Rambouillet wool; registry No. 30, fleece of 344 days' growth; age two years and one month; live weight, 176 pounds. The fibers are fine, true from end to end, elastic, soft, glossy, and strong as cords. The staple lying on the rule measures a little over five inches; when stretched out, six and a half inches. There is just oil enough in it to preserve the wool. Weight of fleece not given.

We are pleased to acknowledge wool samples.

American Southdown Association.

In addition to the special premiums, aggregating \$1,000, heretofore announced as offered for Southdown sheep in the breeding rings, the following will be offered by the American Southdown Association at the Fat Stock Show to be held in connection with the World's Columbian Exposition.

	1st.	2d.	3d.
Wether, two years old or over.	\$50	\$25	\$15
Wether, one year old and under			
two.....	40	25	15
Wether, under one year old....	40	25	15

These special premiums are offered only on compliance with the following conditions:

1. That the sires and dams of the animals competing for said premiums shall be recorded in the American Southdown Record at the time of entry for the exhibition, and that the party making the entry furnish the Secretary of the American Southdown Association, at the time of entry, a copy of same so far as concerns competition for these premiums.

2. That the premiums will be paid on the presentation of certificate from the proper officer of the World's Columbian Exposition. For further particulars address S. E. PRATHER, Secretary American Southdown Association, Springfield, Ill.

Analysis of Wool.

An old authority shows the chemical constituents of wool is intimately connected with the state of the soil. It contains 98 per cent. of organic elements and two per cent. of ash. The former consists of—

Carbon.....	50.65
Hydrogen.....	7.03
N. nitrogen.....	17.71
Oxygen }	24.61
Sulphur.....	
Total.....	100.00

The ash contains oxide of iron, sulphate of lime, phosphates of lime and magnesia; so that the sulphur is a very important element in the composition of wool. It is evident, therefore, that in order to have healthy animals and a full produce of wool there must be in the soil a sufficient supply of sulphur, of nitrogen, of potash, and phosphorous, or the land will not enable the animal to secrete wool in perfection. With these facts before us, we conclude that as these constituents vary in the soil, the character of sheep and wool varies in like manner.

Experience With Rape.

The Minnesota station sowed some rape on land on which a crop of mixed peas and oats had been grown. Sheep were fed on it as an experiment in comparison with other sheep fed on all the timothy and clover they would eat. While four sheep ate 387 pounds of hay, four others picked a good living on one-fifth of an acre of rape. The hay-fed sheep gained 16 pounds in 32 days, and the rape-fed sheep 34 pounds. An acre of rape was eaten while the other sheep ate 1,900 pounds of hay. With hay at the Minnesota price (\$6 per ton), and counting the increased gain from the rape, an acre was worth for sheep pasture \$8.90. Where hay is worth more this figure will be correspondingly increased.

THE "BLESSED BEES."

How They Have Fared During the Present Season.

Reports of Beekeepers in all Parts of the Country.

THE AMERICAN FARMER has received the following reports from beekeepers in all sections of the country. These reports, dated from July 18 to 22, are of the highest importance and interest to all beekeepers, as they give a faithful picture of the condition of the business at that time, which must be invaluable from its sound information as to the various methods, the conditions in different localities, and the prospects as to the course of prices:

COLORADO.

The apicultural business is prospering. Many large apiaries are being started. The yield of honey so far this season is not quite up to the average, owing, I think, to the lateness of the season; but the second bloom of alfalfa may make up the deficiency. Alfalfa honey, on account of its superior quality, is finding a good market throughout the east. I believe prices will be good, if not a little better than last year. Colorado expects to make a good showing of apiary products at the World's Fair.—H. KNIGHT, Littleton, Colo.

CONNECTICUT.

The bee prospects for this season are not flattering. This Spring was late, and bees not in good condition, and it seemed to be next to impossible to get them to business. There is no white clover and but little basswood in western Connecticut, and the show is not encouraging. I shall work for increase instead of honey. There does not seem to be as much desire to swarm as usual.—H. H. KNAPP, Danbury, Conn.

FLORIDA.

This season, so far as our neighborhood is concerned, is a little below the average, on account of dry weather and late Spring. We obtained 28 pounds per colony of (some pure and balance nearly pure) orange honey. Palmetto and Ilex, light yield. I now have 42 colonies at the coast for mangrove. Only a moderate yield, owing to unfavorable weather. The mangrove season will be over in two or three weeks, which closes the season for us. Our honey has to be mostly sold in northern cities, and only brings 5 to 6 cents after paying freight and commission.—GEO. W. WEBSTER, Lake Helen, Fla.

The Spring flow of honey in this part of Florida was very light, and the bees were in poor shape generally when the mangrove opened. Mangrove is yielding honey fairly well, and several apiaries that have been brought here from other parts of the State, where they have built up on a fine flow of orange, palmetto, or gallberry honeys, are doing finely. I have not heard from the northwest portion of the State, but estimate a two-thirds crop for the eastern half. The migratory apiaries seem to promise well for that system this year.—W. S. HART, Hawk's Park, Fla.

I have 25 stands of bees in Simplicityives doing well. Bees are doing well this year. Have immense supplies of orange bloom honey. Moths are not so troublesome as in past years. This is a great country for bees.—JNO. CROSS, Arcadia, Fla.

GEORGIA.

I run this year 21 colonies, Spring count. Saved only four new ones. Discouraged

swarming all I could, and encouraged honey-making. Rain set in June 10, which cut off two weeks of the best honey-making time we have. Our honey season closes from June 20 to 30. I have made 800 pounds of first-class comb honey in sections, and 200 pounds not quite so good; would have made 1,500 pounds had not the rain set in so early. I have to keep my bees in the heart of the city. They trouble my neighbors some, but not much, as I have a large lot, and provide well for them. I use common black bees.—B. W. ELLIS, Cuthbert, Ga.

ILLINOIS.

Forty per cent. of the bees are dead in this vicinity. The season is a month late; did not commence to gather honey until about July 10; 23 rainy days in May and 24 in June; plenty of clover now, but not a section of honey yet, and poor prospects for any. This is the complaint all through this part of the State. I have 17 colonies left from 28 last Fall; not a swarm yet, neither do I expect any. A neighbor bought 20 colonies last Fall, has seven left. I could name others nearly as bad.—JOSEPH MASON, Wallace, Ill.

The past Spring, being very cool and wet, was fatal to many colonies of bees, and probably the number of colonies was reduced one-half. Colonies that were fed and built up strong have done fairly well on the clovers and basswood. Those who have secured choice white clover in sections should expect and demand a fair price for their product. There is little, if any, old honey remaining.—MRS. L. HARRISON, Peoria, Ill.

Last year was one of the poorest on record. Bees were generally short of stores this Spring. The weather has been rainy and stormy, and most apiarists have done but little. White clover has been quite plenty, but it does not seem to yield honey regularly, and over half of the time the bees are not working on it at all. Beekeepers generally are despondent, having had four bad years, including this one.—S. N. BLACK, Clayton, Ill.

The interest in approved bee culture is steadily increasing in central Illinois. The home demand for honey has vastly increased during the last half dozen years, and prices, when we have honey, although not high, have been firm. We are having the second poor season in succession, which may make the market sluggish for a time.—GEORGE F. ROBBINS.

The season for honey has been unusually late here, very little honey coming in before July 15. At present honey is coming in freely. Basswood amounted to little, but white clover is yielding honey later than I ever knew it to before. We will have a fair yield of white honey, with a good prospect for a Fall crop. From other localities I learn of a poor yield.—J. A. GREEN, Dayton, Ill.

Hives full of bees; clover in full bloom; honey flow very light; little basswood bloomed this year. Think the honey crop here must be a light one at best for this year. Swarming moderate.—W. C. LYMAN, Downer's Grove, Ill.

Prospects good for a man that understands the business well. There are a number of apiaries here, but the managers are incompetent. This season will be a poor one, however, because of the continued wet weather.—JACK MONTROY, Chester, Ill.

Bees are storing honey in boxes now quite fast where strong enough. Very few swarms. Not enough bees left to gather a full crop. Abundance of rain, which will help the bee business, but will be bad on the harvesting.—HENRY WILLSON, Clinton, Ill.

The condition of the bee business is good in this neighborhood. I have had 14 years' experience, and have never had a failing year. We have prospects for a good Fall crop.—LOUIS WERNER, Edwardsville, Ill.

Bee business is dull. There has been but little honey harvested so far, and although the prospect for the balance of the Summer is fair, we think the crop will be short.—DADANT & SON, Hamilton, Ill.

INDIANA.

Bees have done poorly in this and adjoin-

ing Counties. Very heavy losses are reported all around, ranging from 20 to 50 per cent. of colonies since early Spring, and of those which survived not more than 20 per cent. of a crop of surplus honey has been gathered. With the main season closed for honey, about 50 per cent. of the usual number of swarms have issued. The prospect for a Fall crop is no better, on account of the floods along the water courses, bad stores, and wet, cold weather, as the bees could not get out to gather honey when in need. There were never known to be any contagious diseases among bees in this County, save that which usually affects the farmer beekeeper—negligence.—ALBERT WITTENMYER, Emerson, Ind.

The cold, wet Spring of 1892 was against bees. Where they were properly fed up they were enabled to make about one-half a crop. Bee pasture here is not very good, but bees usually pay a profit if properly handled, and some years give a large yield. I have taken 150 pounds of comb honey in pound sections from a single colony.—O. H. MENNET, Jonesville, Ind.

Bees are doing nothing. Too cold and wet. If there had been a thousand acres of bloom near my 30 colonies they could not have worked it. I have got no surplus honey nor any swarms this year. In the last two weeks they have worked on the linn bloom, but put the honey in the brood chamber mostly.—D. S. KALLEY, Ferndale, Ind.

This is rather a poor year for bees, as the forepart of the season was so very wet. The bees seem to be late in swarming, and as far as I can see they are rather weak as to size. As far as my observations go, I think it will be a poor year for both bees and honey.—FRANK BURDICK, Fremont, Ind.

The honey crop so far is a complete failure. From 65 colonies, Spring count, I have six swarms, and not a single pound of surplus.—ALVIN L. HEIM, Chandler, Ind.

The honey crop is very light in this locality.—S. D. COX, Washington, Ind.

The past Winter nearly depopulated the apiaries in this locality. Many lost all. Those left are doing well. Prospects for best honey yield in many years. White clover abundant. Basswood not in bloom yet; two weeks late. Abundant rains will no doubt insure good yield of Fall honey. The proper conditions for the secretion of nectar seem to be present this year. So many have gone out of the business it seems likely that honey will be a fair price.—EUGENE SECOR, Forest City, Iowa.

The condition and prospects of the bees in this part of the country are good. A good many bees died this Spring from lack of stores. They do nothing until the 1st of June, and then white clover begins to bloom. It is still blooming, and the linn is now in full bloom. My first swarm issued June 23; the last July 17. I had seven colonies the 1st of June. I now have 18; 14 of them are good ones. I will say the prospects for a honey crop is good, the best I have ever seen.—H. T. LATHROP, Willard, Iowa.

MASSACHUSETTS.

Bees Wintered poorly, many having lost all of their colonies, but white clover has been abundant, and bees have gathered a good surplus of nectar. It is getting to be dry, and the honey flow is about ended for the present.—DWIGHT E. SQUIER, Monson, Mass.

MICHIGAN.

During fruit bloom and afterward frequent rains and cool weather prevailed, so that bees did not, in many cases, make a living. But in the latter part of June white clover began to show abundant bloom, and bees began to prosper accordingly. In this vicinity alike clover is beginning to be an important crop—one which greatly benefits the beekeeper. Basswood is blooming profusely, and clover holds out well. The season promises better than for several years. Apples and cherries have suffered greatly from the lack of bee visitation during blooming time. The bloom not being fertilized, results in great loss of fruit.—EMILY E. WEST, Flint, Mich.

Bees Wintered fairly well, but the cold, backward Spring kept them from flying and

working, until about one-half had died. Since the warm, dry weather set in they have done well. I think we will get about one-half crop. I only lost a few weak swarms I find the most essential point is to have plenty of good stores and bees. With this to start with I can Winter in cellar without loss. It also pays to feed in Spring, even if bees have honey.—W. D. SOPER, Jackson, Mich.

Bees Wintered poorly, and the loss was very heavy; but the season so far has been favorable, and swarming has been excessive, colonies having doubled, and in some parts tripled. No surplus honey has been stored to date, but the basswood is blooming profusely, and we expect a bountiful yield from that source. A very large acreage of buckwheat has been sown, and will undoubtedly help the beekeeper out with a profitable season.—S. J. YOUNGMAN, Lakeview, Mich.

Honey flow has been good for two weeks. The strongest colonies commenced storing surplus July 8. Up to July 4 the season was very poor for bees, and many died of starvation. Some beekeepers lost all their bees during the Winter and Spring. The honey flow from basswood has been very heavy, and is just drawing to a close. My nearest beekeeping neighbor and myself have had foul brood to combat.—D. I. WAGAR, Flat Rock, Mich.

Bees up to 10 days ago had done nothing, and were in bad shape as to brood and stores, but the opening of basswood bloom has helped out very much, as the yield from that source is the best it has been for years. Much has been lost by not feeding to stimulate brood rearing, so that there would be sufficient numbers to gather the crop.—M. H. HUNT, Bell Branch, Mich.

Judging from my bees, I think the bee business is not successful in this vicinity; at least, it has not so proved for the past four years. Bees are now working very well upon basswood and white clover, but as yet have put very little in the surplus sections, and it is now too late to expect much from them this season.—JAMES H. ANDREWS, Almont, Mich.

Bees building up very fast and booming. Clover commenced on the 10th and basswood on the 14th. Never saw honey coming in faster, but owing to lateness and backwardness of the season most beekeepers were not ready for the harvest, so will not get much No. 1 honey. Twenty pounds average extracted to date for myself.—I. T. GOULD, Corunna, Mich.

The outlook for a honey crop is the poorest for 20 years. I have had but two prime swarms from 100 colonies. Clover and basswood, our principal sources for white honey, are nearly passed, and no surplus. Bees are barely making a living. We may get a Fall run that will help us out. If not, we shall have to feed our bees for Winter.—S. H. MALLORY, Decatur, Mich.

Beekeeping has barely paid expenses for the past three years. The present season opened cold and wet, and held so until about June 10. Since then the colonies have filled up rapidly with the prospect of a fair season. In this locality the loss in Winter is the great drawback to beekeeping.—HENRY JONES, Chesaning, Mich.

Bees are a failure here this far. No surplus of any account, and no prospects for an immediate change. According to present indications this will be one of the poorest seasons we have ever had in this locality. We have had immense quantities of rain and scorching hot weather.—JNO. G. KUNDINGER, Kilmarnagh, Mich.

The condition of bees in this locality is fair. It rained most all of May and June; therefore, the honey crop will probably be light. June is our best month for honey here in Michigan. It has not rained any since the 3d of July. Bees have done well since that time. We may have a fair Fall crop of honey.—W. S. WRIGHT, Battle Creek, Mich.

Bees have made very little surplus honey from white clover. It has been a poor season so far, but they have swarmed more than usual, and are still at it. There is no basswood here, so I don't know how they are doing on it.—L. C. LINCOLN, Greenville, Mich.

Bees do fairly well when properly handled in this section of the State. The trouble with the most beekeepers is that their time is occupied by something else. Market is for comb honey at 12½ cents per pound, and is liable to be full.—A. W. JEWETT, Mason, Mich.

Bees are doing well here now, but the season has been very backward, on account of the excessive rains. I dare not predict at this time what percentage of a crop we shall get, but we can't expect a full crop.—GEORGE E. HILTON, Fremont, Mich.

The season here is about one month behind this year, on account of too much rain. Will say, however, for about two weeks bees have been working finely, but only about a week in the surplus boxes. Have not heard of anyone taking any honey from the hives around here yet.—BENJ. PASSAGE, Stark, Mich.

The season to July 5 was very poor—the poorest in many years. At present bees are doing well and securing some very fine honey from clover and basswood. Swarming has been very light.—H. D. CUTTING, Clinton, Mich.

There will be no surplus honey made in this section of the country this year. Bees came out in poor condition through Spring, and May and June were so wet that many bees starved.—W. H. SHIBLEY, Mill Grove, Mich.

Bees are just finishing the basswood flow of honey and the white honey in this locality this year. The average amount per colony is 25 pounds, half white clover and half basswood. Increase, 100 per cent.—C. D. DOANE, Otisville, Mich.

This season, like the three preceding ones, has been very poor for bees. The cold, wet weather is entirely unfavorable for honey secretion. The bees are doing better now, and we may yet get a partial crop.—H. J. COOK, Agricultural College, Mich.

The bees are in good shape in this section and are working fine now, but have not made much honey yet on account of the season being so wet that there was no sweetness in the flowers.—C. A. SHAY, Coloma, Mich.

The Spring months were so cold and wet that a great many colonies died. Have had very little honey to date. Basswood is giving a little now. The outlook is poor at present.—JULIAN TOMLINSON, Allegan, Mich.

We have heavy bloom and rainy weather, also much swarming; indications are of a very light crop of honey.—J. H. ROBERTSON, Pewamo, Mich.

MISSOURI.
On account of the dark honey dew from last season bees died outright or dwindled down to a very few in many cases, and there was so much rain and wet weather that most of them in this section were late in building up; consequently, they were late in swarming, and in most cases only a few swarmed. The honey season so far is only moderate, and honey is not first-class to date with us. It is amber colored and not of a good flavor. We look for a good Fall crop.—J. W. ROUSE & Co., Mexico, Mo.

NEW JERSEY.

Bees did fairly well this season; but white clover and raspberries were cut short by drought, hence the honey crop is generally short. Not many bees in this section.—C. E. VAERNUM, Atco, N. J.

NEW YORK.

Bees came through the Winter in good condition. A long period of cold, windy weather during April kept the colonies weak. Later the weather improved and the crop of fruit-blossom honey was good. Bees grew strong in numbers. High winds, cool days, frequent storms, and much rain have since prevented bees from securing much honey. Consequent-

upon light crop, the combs have been full of brood and swarms have been plenty, although many bees have been lost. Prospects indicate a small crop of honey. The acreage of buckwheat is large, and the latter part of the season may fill the deficit.—J. H. NELLIS, Canajoharie, N. Y.

Bees have secured little more than enough honey for brooding purposes up to date, on account of the extreme wet. The increase is very light. Basswood, which gives our main crop of honey, is in full bloom, and should a few days of propitious weather come now, bees would secure enough for Winter and possibly give a little surplus. On the whole, it will be a poor bee year.—G. M. DOOLITTLE, Bordino, N. Y.

In this locality bees have Wintered fairly well, but cold winds and rain kept them back during May. Since about June 20 they have swarmed some and increased about one-fifth. They are doing fairly well at present. Some swarms have filled 28-pound sections with clover and basswood honey. Prospect for buckwheat honey is fair.—THOMAS PIERCE, Gansevoort, N. Y.

Bees have died mostly from Spring dwindling. We have had a cold season and not much swarming, and only have a light crop of honey as yet. The prospects are that we will not have a good honey crop. Basswood has not bloomed yet.—M. L. SPENCER, Little Genesee, N. Y.

This has been the worst season we have known in years. No surplus yet. Basswood has just commenced to bloom. That is our only hope. Our beekeepers are discouraged. We live in hope.—H. C. NICHOLS, Norway, N. Y.

Bees have secured but very little surplus honey as yet in this locality. They are getting some from basswood, but I do not think we can expect over one-third of a crop of honey this season.—W. E. CLARK, Oriskany, N. Y.

OHIO.

This season has been one of the worst for bees for many years. Have had too much rain and too low temperature most of the time. Bees have not generally filled up their brood chambers with honey. No surplus is expected this year. The fault is not in the bees, but there seems to be no honey secreted in the flowers. A great amount of feeding will be necessary for Winter, unless there should be an improvement soon in the season. Out of 135 colonies I have not had a swarm yet, and have heard of very few from others. The demand for honey is rapidly increasing, but it cannot be met.—S. R. MORRIS, Bloomingburg, O.

The prospect of the bee business is very unfavorable for this year in this location. The white-honey harvest is at an end, with the closing up of basswood, which has just occurred. There is no surplus whatever of white honey. The brood chambers, which were entirely empty, were not filled by clover and basswood. In this locality there is seldom any surplus of dark honey. The present prospect is not as good as usual here. However, there is a little larger acreage of buckwheat than usual, but that is a failure sometimes.—N. T. PHELPS, Kingsville, O.

The prospect for a crop of honey in this locality is not good, owing to frequent and heavy rains for the past two months. Bees are now working in the sections, and if the weather is good we may yet get a crop. The season is late by two weeks. Basswood has again proved the greatest known plant for the honey bee.—DR. G. Z. TINKER, New Philadelphia, O.

In this locality there was no surplus from white clover, and when bees were not fed many colonies starved. For about six days' basswood (or linden) yielded splendidly, some of my colonies getting 25 or 30 pounds. Unless there shall be a fair yield of honey from Fall flowers many colonies will die of starvation before Winter.—A. B. MASON, Toledo, O.

I am a beekeeper, but could not say anything to encourage others. Mine have not averaged their own living these last five years.

I don't blame the bees or the management, but this is a poor locality that has been skinned of everything on top and under the surface, and nothing but a barren field left for bees to hunt over.—JAMES LAW, Warren, O.

The bees in this part of the country are doing very poorly. I have 25 stands, and will not have 50 pounds of honey. We had a very late Spring, and it being wet and cold the bees could not work.—JOHN H. ROHREK, Tippecanoe City, O.

Bees were in good shape all Spring. Had one day only on apple bloom. There is no nectar in white clover. Bees are now bringing in about two pounds of honey per day. Basswood and Canada thistle are blooming.—G. A. ADAMS, Perryburg, O.

The honey crop will be a failure in this section of country. The season was too wet and cold up to June. Clover did not seem to produce nectar to any extent.—S. A. DYKE, Pomeroy, O.

PENNSYLVANIA.

The season has been a very poor one so far, but at present writing there seems to be quite a boom among the bees and quite a lot of honey coming in; how long it will last at present I am unable to say. The average honey crop so far will not exceed 10 pounds per colony in this section. The bees did not swarm this Spring, as usual, as there was no honey coming in, and the queens almost stopped laying for a short time.—JOHN KERR, Greensburg, Pa.

The honey crop is a failure this year, as we have only about one-tenth of a crop. The bees are in good condition. To-day they are bringing in honey dew from chestnut trees, but it is so dark that it is not salable. I have 50 colonies of Italian bees. Have kept bees in a practical way for about 15 years. This locality has enough bees. White clover is the main honey crop, though some years red clover helps much.—H. M. MOYER, Hill Church, Pa.

It has been so cold and wet all through May and June that the bees have not been doing much. They are making some honey now on basswood bloom. Have had but few swarms. Honey will not be over one-third of a crop here. The very cold nights keep them out of the surplus cases, unless they are very strong. April was very fine for bees, and we had hopes for a good season.—F. W. DEAN, New Milford, Pa.

Bees started to store surplus honey about the 1st of June. Some days later carried it down to brood chamber. Will not average 10 pounds of honey in sections to the colony. Had several swarms early in season. Have killed off the drones. We will get the least surplus honey this year for the past eight years.—J. N. SPROWLS, Claysville, Pa.

RHODE ISLAND.

Bees Wintered well and built up very strong, and were in splendid shape when basswood bloomed; but it rained and was foggy for over three weeks. The bees consumed more than they got. White clover is holding on, and we are getting some yet. Shall get about one-quarter crop. Fall honey here is very plentiful.—THOS. M. PIERCE, Wickford, R. I.

The bees have done splendidly this season. I lost but one swarm in the Spring, and now the parent hives are full of bees. I think I shall get this year more than an average crop of honey.—WALTER SHERMAN, Newport, R. I.

SOUTH CAROLINA.

The cold Spring, reaching to early in May and the extensive and constant rains in latter part of June and in July, have made it a poor year for honey. Very little has been gathered. Our best honey, however, is found in September and October.—H. T. COOK, Greenville, S. C.

TENNESSEE.

My bees number 110 colonies, and are doing well at the present time. Sumac is beginning to bloom and is plentiful. Our bees get nothing from poplar and linn, on account of continued rains. We have fine weather now.—W. M. SCRUGGS, Tracy City, Tenn.

TEXAS.

Bees in this locality are worse off than for many years past, starving on the highlands and prairies, and doing almost nothing on creek bottoms, where usually from 75 to 90 pounds are gathered to the stand. In a very few spots they are holding their own. This is owing, I think, to hard freezes late in the season and a greatly deficient rainfall through the Spring. Have lost one-fifth of my hives by absconding for better pastures, there being literally nothing at home. Perhaps we may get some honey this Fall.—A. SION, Kyle, Tex.

Bees are just beginning on cotton bloom. We expect a fair crop yet of honey. Bees in northern Texas have been a failure up to date as far as honey is concerned, but it has been favorable for queen rearing, as bees have gathered honey enough to keep brood rearing going. North Texas will not show over one-half of a crop of honey now at best, as it is too late. We have had the latest season for many years.—JENNIE ATCHLEY, Floyd, Tex.

VERMONT.

Honey crop gathered to date—25 per cent. Basswood not yet through. This is the best source for surplus here. Bees are in good shape to gather a large crop from it. Cloudy, cold, windy, and wet previous to July. Comb honey retails here at 16 to 20 cents per pound. Extracted at 10 to 15. Location, central part of the State.—H. W. SCOTT, Barre, Vt.

I have nothing encouraging to say in regard to the bee business. The honey crop here is almost a failure, although the prospect for a good crop was never better than it was five days ago. Basswood, from which we get the most of our white honey, is in full bloom now, but there is no honey in it, and the bees are idle. One-eighth of a crop in all we can count on.—A. E. MANUM, Bristol, Vt.

It is a little too early to form an estimate regarding the honey crop, etc., but I think there will not be one-fourth of a crop, owing to the wet weather. During the fruit-tree bloom it was cold.—MARCIA A. DOUGLAS, Shoreham, Vt.

The prospects for a honey crop in this section are not very good, as the weather has been unfavorable, being too wet, and the bees did not get very strong; but we hope to get them in good condition for Winter.—W. G. LARREA-BEE, Larabee's Point, Vt.

The honey season in this section is nearly closed, with an extremely light crop. There has been some increase of colonies by swarming, but some will have to be fed for Wintering.—R. H. HOLMES, Shoreham, Vt.

WISCONSIN.

I put 150 colonies in cellar last Fall, got 100 through this Spring, and had to feed right along until July 8. It has been the worst Spring I ever saw for bees—cold and rainy for three months. There is no prospect of a honey crop. White clover and basswood are a failure. If the bees gather enough for Winter stores without any increase we will be thankful.—H. LATHROP, Brownstown, Wis.

The beekeepers in Wisconsin lost 50 or more per cent. of their bees last Winter and Spring. It was an unusually disastrous Spring. On account of cold weather the colonies did not build up. During the past few weeks they have been doing better, and if there should be an average honey flow from Fall flowers, we may yet have enough for Winter stores, and possibly a small surplus.—J. W. VANCE, Madison, Wis.

The prospect of honey this season is very poor in this locality. The white clover has secreted very little nectar. My bees (23 colonies) have hardly more than they need for Winter food. We expect some of the Fall flowers, but not much. The season around here will surely be a failure.—T. H. DAHL, Stoughton, Wis.

At least 75 per cent. of last Fall's bees are dead. Have had but few swarms. No honey up to now. Basswood just coming into bloom. What bees are left are not more than 80 per cent. in strength.—C. A. HATCH, Ithaca, Wis.

To be continued.

THE ORCHARD.

Cullings.

It is not well to plant an orchard on too rich soil, as the trees will make too rank a growth.

Colorado is rapidly becoming a fruit-growing State, and from the present outlook it bids fair to rival California.

As soon as the fruit has been collected from the currant bush prune off one-third of the old wood. This should be done every year.

In central Europe the soils which produce the choicest grapes and finest wines do not contain more than three per cent. of phosphoric acid.

It helps the trees to pick off the imperfect specimens of fruit, for as much vigor is required to develop them as if they were the best and most perfect.

Black-knot in plum trees can be eradicated. Cut out the infected part and burn it. If the trees are so badly infected cut them down and burn them.

A light sandy soil is the best on which to plant cherry trees. If the trees are set out on any other kind of soil more wood than fruit is apt to be the result.

A pear and plum orchard should always be kept in cultivation. A good one cannot be had when the ground is kept in grass. Cherries, however, will do very well if kept in grass.

If root pruning is to be done at all in the orchard it should have been done in June or earlier. The fruit buds are forming in July and August, and in the Fall it is too late to do this work.

Good stable manure, supplemented with wood ashes or some other fertilizer which contains a good amount of phosphoric acid and potash, makes one of the best of matters for fertilizing most fruit trees.

Don't let the branches of your trees grow to such an extent that the sun is wholly excluded from the bark. Warmth is necessary to the roots of a tree, and it stands to reason that if the bark gets no sun, neither do the roots.

California promises to have an abundant yield this year. The fruit and potato crops of that State are so great that a large percentage of them will not be brought to market, owing to the price being so low that it will be unprofitable.

It has been found that trees sprayed with mixtures containing arsenic, to prevent injury by the curculio, codling moth, etc., were less susceptible to the attacks of fungi than trees not sprayed, or those sprayed with mixtures which do not contain arsenic.

A fruit grower in Champaign County, Ill., says: "To apply the phosphate fertilizers on soils lacking that element, and to give copious irrigation to all soils in seasons of drought my experience and observation teach me is the secret of successful fruit growing."

Fruit trees planted in sod cannot be made to yield successfully. Each one of the millions of little grass roots takes its share of water from the soil, and in this way the tree is deprived of the moisture necessary to sustain it. The tree will hardly live unless the season be an unusually moist one.



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Care should be taken that too much fertilizing material is not given to cherry trees. If the cherry tree is set in ordinarily good ground it will not need much fertilizing. Plant them on rather thin soil—not poor—and they will do best. The soil, however, should not be too moist or dry. If the soil is made too rich, the bark of the trees will crack and the sap will ooze out and form a gum.

The fruit growers of southwestern Michigan are having considerable trouble with their apples this year. The fruit looks sunburned and dwarfish, and most of the Golden Russets are cracked clear around, half way between the stem and the blow end. Little Baldwin apples, the size of quail's eggs, show red cheeks as though they were approaching maturity. The growers are mystified and do not know what is the cause of the trouble.

A good many farmers ask why their apples and pears are scabby, speckled, and one-sided. There are several causes. One is by checking of growth early in the season; another is an insect that works on the fruit; and still another is a low order of fungus growth, which begins early in the season. When it is severe it stops the growth on one side and renders the fruit one-sided. It is known as "scab," and develops on both the apple and pear.

Fruit for the Farmer.

Prof. Honeycutts, of Georgia, in an address before a recent meeting of the American Nurserymen, at Atlanta, expressed his deep regret that so many farmers in different parts of the United States entirely neglected fruit-tree planting for home supplies. They appear not to be aware that the health of their families and the happiness of their children depend very much on these luxuries. There is no reason why they should not have a good supply of excellent apples, peaches, pears, plums, strawberries, and raspberries, where now they are never seen. The plantations may cost but little, and the conveyance of the ripe fruit from the trees to the table will not be attended with the labor and expense of assorting, packing, shipping, railway conveyance, and commission required for those who raise fruit for money. It is lamentable that such is the fact, yet, nevertheless, it is true in many instances.

HORTICULTURE.
A Well Attended Meeting of the Dayton Society.

The regular monthly meeting of the Dayton (O.) Horticultural Society for July was held on Wednesday, the 6th inst., at the residence of President Ohmer, near the eastern limits of the city. It was of an especially interesting character, the President and Secretary of the State Agricultural Society being present, and also Prof. William Lazenby, who is connected with the State University. After the usual formalities were gone through with, reports of the different members were in order.

The first speaker was Hon. N. H. Albaugh, and he discoursed for a few minutes on the subject of orchard fruits. The cold and wet weather had, he said, caused great damage to the crop of fruits, and he had not known of such a poor season for 25 years. He thought, however, that good would grow out of the failure by the starving of obnoxious insects.

Prof. Lazenby reported that in his locality there were some plums and apples, but the cherry crop was a complete failure. President Ohmer had 150 Ben Davis trees on his farm, but there was no fruit. He attributed the failure to the state of the weather.

Mr. Fronun next reported that his crop of strawberries had been materially reduced by reason of the cold nights and big rains. Others reported average crops, but in no cases were the prices up to the desire of the grower.

Reports of the other various branches of agriculture having been read and discussed, the meeting was concluded with an able essay by Prof. Lazenby on the "Possibilities of Horticulture." In his remarks he endeavored to show the untold benefits and profits arising from successful horticulture. The skilful horticulturist is able to reduce the many risks attendant upon this pursuit by carefully studying the means of propagation and by acquainting himself with the characteristics of the soil, etc. Among the more important possibilities he mentioned were: Improved methods of originating and propagating varieties; more economical means of preserving perishable products, and better machinery for the distribution and marketing of products. One great reason, he said, why the

horticultural traffic was not regularly and systematically built up was because the quality of most of the products was irregular and imperfect. He expressed great contempt for the man who was too lazy and shiftless to properly grade his products, and urged that every grower should do away with deceptive coverings and undersized packages, and thus build up and improve the vegetable markets.

After a discussion on this essay, indulged in by several of the members, the meeting adjourned to meet next month at the residence of Mr. J. K. Teeter.

An Historic Elm.

The historic elm at Symmes's Corner, Winchester, has been cut down. For 200 years settlers in Winchester and Medford have spoken of the "big elm." In Brooks' history of Medford mention is made that in 1775 Captain Brooks, the father of Gov. Brooks, owned the farm. Capt. Brooks was standing beneath the tree when summoned to the command of his company against the British. Long before the advent of railroads, stage horses rested beneath its shade, and travelers and others guessed its age. Mr. Marshall Symmes, present owner of the farm, believes the tree was of good dimensions previous to the coming of the white man. The local historical society will endeavor to arrive at the exact age of the "big elm." —*Massachusetts Ploughman.*

Soil for Wheat.

A great amount of the money annually lost on wheat crops could be saved if the farmers would pay more careful attention to the cultivation of the soil in which the wheat is to be grown. A paying crop can never be grown on soil that does not possess a rich fertility, nor upon that which is heavy or wet from lack of proper drainage. Clay land furnishes a firm soil, and this is what is required for wheat.

To inculcate a liking for and interest in the study of the different varieties of trees, a schoolmaster of Worcester County, Md., recently offered a prize of \$5 to the scholar who should collect for the school museum the largest number of varieties of native woods. The collection which took the prize contained 154 specimens, 122 of which were native. The second best collection contained 107 native varieties. Altogether there were presented 137 different native varieties.

THE DAIRY.

Skimmings.

The largest kind of matured corn is the best to convert into ensilage.

A cow should be fed all the clover she can eat, which will be in the neighborhood of five pounds per day.

One reason why there is such a large amount of poor butter is that the cream is allowed to stand too long before it is churned.

No cow was ever a good dairy cow that was not born so, but thousands of cows that were born so have been spoiled by poor and unwise handling.

England is pre-eminently the leading cheese country of Europe, importing about 70 per cent. of the whole amount imported by the different countries.

Good butter will always bring a good price. If farmers would only think of quality instead of quantity, they would be able to make more profit from the cows.

Will it pay to cut dry corn fodder for the cows? is a question often asked. We think it will. The cows eat more of it, and it is in better form for the manure pile.

While buckwheat is a cheap crop, it is not the kind of food to feed to cows if you desire to make good butter. The elements which compose buckwheat are not the kind to help to make a prime dairy product.

We must look out for fermentation in the cream jar. The bitter condition of cream is the result of putrefaction, and arises from its being kept in a cold atmosphere. Cream should never be held longer than 24 hours in Summer and 36 hours in Winter.

Kindness is one of the requisites of a dairyman. Cows which have received kind treatment will give better results than those which are ill-treated. There is nothing to be gained by kicking or belaboring a cow, because, while milking, she will persist in waving her tail to drive away flies which are tormenting her.

Among the many things which cause a shrinkage in the production of milk are dry and barren pastures, the keeping of cows from water until they eagerly rush for it, and chasing by dogs. Beginning when it is but a calf, the animal should be handled gently on all occasions, and in this way the best results will be obtained.

It seems strange when in reading of extraordinary feats of by-gone days how easily such things are accomplished at the present day. In 1846 the Jersey cow was the first animal to give 14 pounds of butter per week. It was confidently asserted that such a great yield could not be exceeded, although it might be equaled. We now have several Jerseys that have made records of four pounds a day.

John Gould, of Ohio, who has made money out of dairying, says: "My success has come largely from giving my cows the best of shelter in Winter, water with the chill taken off, and all the comforts I can devise or think of. We may feed a cow in such a way as to

largely increase the cost of her maintenance, but we cannot force her production beyond its normal limit. Hence, we should keep only those cows whose natural flow of milk is large or very rich. I have had no difficulty in convincing myself that ensilage is a necessary ration, but I am not so fully convinced of what should be fed along with it."

Henry Talcott has been giving a series of splendid articles on practical dairying in THE AMERICAN FARMER, and he strongly urges the use of silos. Col. F. D. Curtis, another man who has made money out of dairying, is another ensilage man. He says: "If the farmer has not on his farm the food needed by his cow, then he should buy it; but at the same time I believe he should raise everything he can on his own farm. In the first place, every dairyman needs a silo, because he can have in that silo food that is better and cheaper than anything else he can get. Then he wants clover, and oats, and peas. With these as dry foods, he has a perfect ration in connection with his ensilage."

Norman Cattle.

EDITOR AMERICAN FARMER: The Normandy race of cattle is a kind of elephantine Durham. Since three years a regional Herd Book has been prepared, where the best specimens of the race are registered. The aim is to reduce the excess of bone, develop milk power, and secure precocity, not by crossing, but by native selections, judicious feeding, and studious care. In the local agricultural shows, the improved Norman is specially favored.

Now Normandy is also one of the chief centers for raising veal for the Paris market, that meat being in constant demand. It is the foremost region for butter in France. Veal-making pays, and the system of rearing the calves is simple; they never are allowed to suck the mother, and are wholly rationed on skimmed milk, save that after the early days of birth, which is given them for its natural medicinal effects. There is no limit to the quantity of milk given, but as too much would induce indigestion and so grave disorders, the skim milk is strengthened by starch and meals, which not only act as substitutes for the cream removed, but reduce the necessity for imbibing a large and dangerous volume of skim milk. From the first drink out of the bucket the calf is accustomed to a farinaceous substitute, and this appears to be the whole secret.

The substitute may consist of some of the genuine calves' food prepared for the market. Cocoa meal has been tried, but this ration succeeds best when employed for feeding cows whose milk is intended for cheese. Some of the most successful veal-producers employ well-cooked potatoes, mash them up with the milk, in the proportion of two and a half pounds of tubers per four quarts of milk, removing the skins when they rise to the surface.—J. H. L., Paris, France.

A bounty of 1 cent a pound is paid by North Dakota for potato starch, and a large number of factories have lately been established throughout the State.

DAIRYING.

The Great Advancement Which Has Been Made in this Art.

What would the dairyman of the present day do if he were compelled to secure cream and churn butter as this work was done in years gone by? Certainly, in the light of the present time, this method of dairying may seem to have been crude; yet, crude as it may have been, the dairyman of that time found a profit in it. The great changes which have taken place in everything relating to agriculture have been very marked in the art of dairying.

How many farmers remember the days when the milk was set out in heavy stone crocks to "let the cream rise"? How carefully was the cream skimmed and worked in the old dash churn. But we cannot call this method old-fashioned, since there are many, many farmers who secure their cream and churn their butter by this process. It is only where dairy farming is exclusively practiced that this method is regarded as obsolete.

The introduction of the thermometer was one of the steps in the advancement of dairying. By means of this simple instrument a temperature was established—65° in Winter and 56° in Summer—at which it was best to churn. As simple as may be the use to which the thermometer was put, yet it cannot be disputed that it did a vast amount of good. Before its advent it was good or bad luck according to how the churning turned out, but after its use became general, the absurdity of this superstition became apparent, and thus one of the mysteries of the churn was cleared up.

The paddle churn, guaranteed to bring butter quickly, was the successor of the dash churn in some localities. This machine, as its name signifies, had a number of paddles which continually beat the milk, and on this account it was claimed to be a quick butter producer. In a good many farmhouses the barrel churn is usurping the place of the old dash churn. This churn is a simple barrel, which is fastened to two axles and revolved by means of a crank.

The next great change was the process of making granular butter. This process was discovered but a few years ago. Arnold, in his American Dairying, published in 1879, says this of granulated butter: "A new practice in manipulating butter in the churn is coming into use among the fancy butter makers in New York and New England." The author then gave quite a lengthy account of a dairyman who used a dash churn for making granular butter.

Arnold says: "Mr. John Higgins, of Speedsville, N. Y., used a dash churn, and when the butter granules reach the size of a small pea, or finer, he pours in water to harden them, and then skims them off, putting into cold water and washing to get rid of the buttermilk." The dash churn, however, was soon done away with by dairymen. There was entirely too much trouble and time expended in getting the granular butter. A simple revolving churn, which admitted of the buttermilk being drawn off from below and of easily washing the butter while in a granular form, took its place.

It will be observed that all these improvements were made in the utensils of the dairy; but the next great step in the advancement of dairying was in cream raising. The Swartz system, which was nothing more or less than pouring the milk into deep vessels and setting these in cold spring or ice water, was adopted by many. The Cooley system was then brought out, but that only differed from the Swartz system inasmuch as the cans containing the milk were entirely submerged.

A few years ago the centrifugal cream separator was looked upon as a mere nothing. To-day it is beginning to become a necessity for every large dairyman. Co-operative butter making has become to be quite popular among farmers, and the centrifugal cream separator has made this kind of butter making possible.

The butter extractor—which takes the butter directly from the milk and does away with creaming, cream ripening and churning—is the latest improvement toward advancing the art of butter making. Undoubtedly this extractor will be a success, and much of the dairy work will be done away with.

What improvements the future will bring cannot be surmised. The past can be read like an open book, and the great changes which have taken place can be seen in a glance. The dairyman must have utensils to keep abreast of the times and to facilitate the supply in order to meet the demand, and as long as dairying remains a business so long will improvements continue to be made.

The Gad-fly is propagated in the backs of cattle, where the eggs are deposited by the fly in the thick muscle of the loins. At this time these grubs may be found hidden in small tumors having an opening by which the tail of the grub may be seen. It is quite easy to squeeze the grubs out by pressing the tumor, and then crush them. It is not advisable to kill the insects in their burrows by any oil or other application, as the dead grubs will produce inflammation, and possibly blood poisoning, and so cause more mischief. It has been recommended to smear the backs of the cattle with grease and tar in the late Summer, when the flies are depositing their eggs.

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WANTED—A Virginia lady wishes to teach English and French mathematics, and music. Address Miss A., Howardsville, Albemarle Co., Va.

WANTED—A situation as companion in a nice Christian family; best of references given. Also would like to correspond with a Christian gentleman between 30 and 40. Address Miss B. Roots, Raleigh, N. C.

FOR SALE—On four years' time, a highly improved breech-loading bird and duck gun for sale cheap; Parker make; good as new; original price, \$150, will sell it for \$50. Address "H." care Sunny South.

FOR SALE—A well-watered farm of 602 acres, at \$50 per acre, rich, deep soil, seven miles from Nashville, Tenn.; 450 acres in cultivation. Can rent for \$3,000. River and R. R. transportation. A big, big bargain. W. H. Timmons, Nashville, Tenn.

WANTED—Situation as teacher in school of family; good references. Miss L. Garnett, Dunmore, Essex Co., Va.

25 acres fruit and poultry farm for \$600. J. Waner, Vineland, N. J.

TO EXCHANGE—For wax or cash, Standard L. H. Heddon, N. H. combs, at five cents each. Combs all worker, and in good order. H. D. BURRELL, Bangor, Mich.

THE GARDEN.

Pluckings.

The Bordeaux mixture is not a remedy for the potato bug. If Paris green be mixed with it the death of the bugs will be certain.

Essex, England, is suffering from an invasion of the pea-weevil. Great damage has been done, in many cases whole fields of peas being destroyed.

Anaheim, Cal., is to have the largest beet-sugar factory in the world, 40 acres of land having already been donated by the citizens of that city as the site for the works.

The largest bean-patch in the world is in Ventura Co., Cal., and contains 2,200 acres. It produced last year 1,030 tons of Lima beans, making several solid train loads.

The earliness of corn may be much increased by taking for seed the ears which ripen first, but unless care is observed in selecting none but large ears, a diminution of size may result.

The only objection to the tomatoes which belong to the night-shade variety is that the vines have a strong and very pungent odor, and, what is worse, the fruit partakes of this odor more or less.

Swamp muck has a wide range of value as to fertilizing quality. Some of it hasn't enough nitrogen in it to pay for digging, much less hauling, while others are worth \$5,000 an acre if a yard deep.

Locality and custom has much to do with so nearly uniform a vegetable as the sweet potato. The true Southerner wants it sweet and soft, while his more Northern brother prefers it "mealy," like a good Irish potato.

Salt peter is an effective remedy to check the ravages of the cabbage worm. Make quite a strong solution and sprinkle the plants. This will kill the worms, and it will also prevent the butterfly from depositing its eggs on the plants.

As valuable allies in insect warfare, many good words can be spoken of the mole and skunk. They are both good insect destroyers, and although they frequently do some harm, the good they accomplish more than counterbalances the evil.

If all the peas have been gathered, clear the land of the vines, fork it over, and the land will be in excellent condition for turnips. The purple top is the best grower, but its quality comes nowhere near equaling that of the golden ball or the white strap-leaved.

Should such a thing happen which would destroy all the potatoes in the world except only one, the world would be supplied with an abundance of seed at the end of 10 years. During that time a careful cultivator could produce 10,000,000,000 tubers from the single seed.

Connecticut, in addition to making wooden nutmegs, has secured quite a reputation as an onion-growing State. Onions have been found to thrive quite well in Oregon, and it is said that this State will, in all probability, become a great competitor of the Nutmeg State in the production of this bulb.

A pickle company of Pennsylvania will send to the World's Fair a map of the United States made entirely from pickles, vegetables, fruit, etc. It will be 18x24 inches, and will show the State lines, the lakes and rivers being represented by vinegar. Spices will indicate the larger cities.

Among the enemies of the vegetable garden, one of the most annoying is the striped cucumber beetle. Various remedies have been tested, but one of the most effective is tobacco dust. A few handfuls thrown upon each hill will be found to be almost a specific. It has the double advantage of being an excellent insecticide and a valuable fertilizer at the same time. Ashes slightly moistened with crude coal oil or kerosene have also been used with good results.

The Winter supply of carrots should be sown as quickly as possible. It is not too late now to sow some of the early varieties. Short Horn, which can be sown as late as this month, is a good variety, and you will have a good amount of tender roots for the cold weather. The plants of this variety are very hardy, and they can be left in the ground until near Christmas. All that is necessary to keep them is to mulch with straw or clover at the approach of cold weather.

Moisture, and plenty of it, is necessary if the best growth of celery is desired during the Summer. One way of doing this is to keep the surface stirred and fine; this will aid to retain moisture in the soil. It is not necessary or best to stir the soil deep; two inches is plenty, but it is important to stir thoroughly. If watering is needed it will generally be best to use dilute liquid manure and to saturate the soil thoroughly around the roots. One or two good waterings a week will give far more satisfactory results than a slight sprinkling every day.

If there is any one thing that more than another serves to preclude the possibility of obtaining the highest prices for vegetables, it is in the fact of their unattractive appearance when on the market and ready for sale. Who would buy a bunch of celery showing on its face that it had not been cleaned, and which was clumsily tied together, when a little further on a clean white bunch, neatly tied with twine or tape, could be secured? The sooner all of our farmers realize that cleanliness is a prime factor in the obtaining of a good price for their products, the sooner will they obtain the higher prices, and profit thereby.

Saving Seed.

EDITOR AMERICAN FARMER: If you have a garden it is worth while to let some of the best specimens of different plants mature and grow into seed. Why should not this be done? The plants are growing in your own garden, there is very little extra labor required to let them grow into seed—probably the hardest of this work will be in planting stakes to keep the plant from falling down—and how many day's work is necessary to gather the seed? There are some people who, although they have a good garden, always purchase seeds in the Spring. This is all extra expense, and certainly there is no economy in it. If it costs \$5 to purchase seeds for your garden in the Spring, and you have a

garden and gather the seeds yourself you save \$5, and let me remind you that \$5 saved is \$5 earned.

Would a farmer sell all his oats, rye, corn, wheat, and other cereals which he raises, and not leave any to be used as seed for next year's crop? It might seem foolish to ask this question, yet, if the truth be known, a majority of those who are careful to save the cereal seed are the very ones who buy their garden seed. This is something like robbing Peter to pay Paul. Save the garden seed as well as the seed for the farm.

It is a settled fact that allowing plants to mature seed exhausts the soil much more than the growing of an entire crop. If you cannot use all the lettuce, radishes, peas, spinach, and all vegetables of this class, pull them up and feed to the cattle or poultry. Do not fail to allow those plants to grow which will give you all the seed required for next year's planting. Only let those vegetables seed which are the most thrifty and healthful looking mature for seed. With lettuce, radishes, and all of this class, care must be taken to cut off the tops before the seeds are fully ripe and let them cure, then they can be threshed off and cleaned without loss; if allowed to ripen the best seeds are liable to shatter off and be lost. A little care in selection, harvesting, and cleaning seed will aid greatly to maintain or improve their quality, while if carelessly selected they will deteriorate very rapidly.—ISAAC JONES, Norfolk County, Va.

The Currant Borer.

When currants begin to wither, turn yellow, and drop off the bush, the cause can be attributed to the borer. This is the first visible indication of the injury which the grower sees. The parent insect of the borer eats its way through the bark of the bush and penetrates, by means of the pith of the stems, through the whole plant. The eggs are deposited in the plant, and after a while they are hatched and cause the same injury as their parents to the currant bush. When the indications of the presence of the borer is made known the insect has been a resident of the plant for some time.

There is only one sure way of getting rid of this devastating insect. Carefully examine the currant bush, and when the presence of the borer is detected cut out and burn the infected parts. If it is necessary, do not hesitate to destroy a whole bush, for if an infected bush is left the insects will radiate from it and affect the whole patch.

It has been oftentimes demonstrated that plants are like many persons, in that they care for themselves in most instances, regardless of others. The Brazil nut contains between 15 and 20 seeds, all of which germinate at one time. When the most vigorous one succeeds in getting into the open air it strangles and devours the weaker plants. Another plant of this kind is the parasitic fig, the seeds of which are distributed by birds. In the event of the lodging of one of these seeds in the fork of a fruit tree, a long root is sent down until it reaches the soil, and in a comparatively short while the tree is covered and smothered by the fig plant.

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No farmer or farmer's son should be without this watch, which keeps the time so accurately that it needs to be compared with a regulator only once in many months. We have contracted for a large number of these watches, and to make them move quickly we have determined to furnish a chain with each watch. These chains will not be sold separately. They are made of nickel-plated steel and are ornamented with a charm. Thousands of farmers will, of course, wish one of these watches, and our immense supply will probably be exhausted within a few months, so club-raisers and purchasers should allow no time to pass before they try to get one for a club or for cash.

For the present we offer this watch and chain for a club of 10 subscribers and \$2.50 added money—\$12.50 altogether—or we will send both watch and chain (without the paper) to any address by insured mail for \$5.60. With the paper, one year, \$6.25.

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THE FARM.

WHEAT CULTURE.

How and at What Cost it Can be Cultivated in Kansas.

EDITOR AMERICAN FARMER: At this writing we are harvesting a large acreage of extra quality of wheat in this part of Uncle Sam's Farm, and by the time we take the crop off of the field we begin to look through the many different agricultural journals to see if we can procure any information of mode of culture of wheat to enable us to increase the yield or to cut down the expense of the coming crop. We are all ready to admit that we can raise with a good profit at \$1 per bushel. In fact, if I could have a guarantee on wheat at \$1 per bushel, I would quit everything else and turn my entire attention to raising wheat. But I believe the days of dollar wheat in the future are few, and the question that confronts us as American farmers is how can we lessen the cost of producing the crop to make wheat profitable at 50 cents or less per bushel, and the proof I have to offer for this assertion is this: With India and other foreign countries turning their attention to wheat culture, our export markets are crowded with cheap-labor wheat, thereby lessening the demand for our surplus crop. Therefore, the price is bound to stay down unless there is a famine in some of these countries, and we do not want to see or hear of this just to put a few dimes in our pockets. At present the only way I can see to make wheat profitable at 50 cents or less per bushel is to make use of the best mode of culture and the latest labor-saving machinery for putting out and harvesting the crop. But before

give my own experience in the culture of wheat I want to give a few notes from a young man that came to Kansas from that grand old State, Pennsylvania. About 25 years ago he took a claim and worked by the month for farmers when he could, for he was a man without money. He turned his attention to raising wheat exclusively, and to-day is a wealthy man from a farmer's standpoint. In the month of August he plowed his ground about five to six inches deep, pulverized the seed-bed well with harrow and roller, and drilled the seed in, 1½ bushels per acre. I wish to call the attention of your many readers to one of his main sources of profits. He had a stackyard of about five acres enclosed with a stonewall fence. In this his wheat was stacked and thrashed and the straw carefully stacked. In the Winter he took in cattle to eat up the straw. By doing this he received good pay for his straw and had a large amount of manure free, which was hauled out and spread evenly over the ground. In this way he kept up his land and increased the yield. Near by, on a better farm, another man tried wheat-raising. He burnt his straw and did anything else to get it out of the way. He broke up and went West several years ago. From experience I have learned that the land should not be plowed too deep, as it gives the young plant a chance to get hold of the hard ground, so as it will not be so apt to die out when Spring

comes by thawing and freezing. In the issue of the *Kansas Farmer* of June 22 Mr. P. W. Kenyon has an article on wheat culture, in which he says that he has raised wheat in Kansas for 25 years, and for the last eight years he has not plowed the ground. He mows the stubble and burns it when dry enough, then sows with a sharp Spring hoe drill set into the soil from three to four inches. He finds the plants Winter better, and burning over the ground kills the dangerous wheat insects. He gives the following table for the cost of raising one acre of wheat of 15 bushels:

Mowing stubble.....	\$ 25
Seed.....	25
Drilling.....	25
Harvesting and stacking.....	1 50
Thrashing.....	1 20
Total cost of production.....	\$ 3 45
Cost per bushel.....	23

By this we find the cost of producing the crop cut down to a fine point, and where manure was spread the ground would have to be plowed. The largest and plumpest, grained wheat I ever raised was in Kansas, on second sod, as we call it in the West. The sod had been broken in the Spring, rebroken in the Fall, and the wheat sown broadcast, as the ground was too rough to use a drill. The cost of producing a crop of wheat can be diminished by following wheat after corn and using a one-horse drill. When the corn has been kept clean I have been quite successful in a wheat crop this way. The cornstalks help protect the wheat in Winter.—J. R. COTTON, Emporia, Kan.

To Sheep Breeders and Wool Growers.

Politics overwhelms all other questions in this country. The issues are all discussed. No one question, however, has precedence over the tariff. Wool has been selected as the weak point in the McKinley law, and while free silver shakes the citadels of both the old parties, the tariff fight is the biggest issue before the country. The sheepmen need not rest from their anxieties and labors. They are to be the first victims of the free-trade party. They may rest assured of not being forgotten.

THE AMERICAN FARMER desires to hear from its readers who are voters on this question, What will be the effect of free wool on the sheep industry of the United States? It is a plain question, to be treated in a plain, common sense way.

The Song of the Texas Corn.

I was dry and dusty,
I was weak and weary;
Now I'm glad and lusty,
And the earth looks cheery.
Oh, the soaking,
Mirth-provoking,
Laughter-making rain;
Soft and silky,
Mild and milky,
Grows my golden grain.

Listen to the laughter
That my leaves are making
When the wind comes after
Kisses, softly shaking.
Oh, health giving,
Breathing, living,
Heaven-pouring rain;
Come, caress me,
Kiss me, bless me,
Once and once again!

Let your hearts be singing;
Peal your peanas, peoples,
Set your joy-bells a-ringing
In the lofty steeples.
Praises render
To the sender
Of the joyous rain;
Of the living,
The life giving,
Of the precious rain.

—John P. Sjolander, in Galveston News.

Straws.

The Vermont farmers think that it is about time one of their profession was elected Governor of the State.

North Dakota is making a record as a wheat-producing State, the total production of 1891 being 64,713,328 bushels.

The best lubricant for the mowing-machine is sperm oil. Next, palm oil and plumbago, or a paste of castor oil and plumbago.

Bunches of tall weeds or bushes greatly hinder the growth of grass in pastures. They also diminish the sweetness in the grass growing near them.

The imports of American corn into Germany for the first quarter of 1892 was 4,736,428 bushels greater than for the same period of 1891.

It having been demonstrated that ocean vessels can carry baled hay as cheaply as oats, it is expected that a large export trade of hay will be built up.

The enormous increase of rats of which so many farmers are complaining is probably due to the extermination of their natural enemies—hawks, owls, minks, weasels, and snakes.

It is cheaper to make a good road than to make a bad one. The money expended on the wear and tear of your wagons, of your horses and harness is enough to make a good road.

A good poison for rats can be made by mixing arsenic with melted tallow, and allowing it to cool into a cake. The tallow should be nearly melted when the arsenic is added.

Recently a gentleman of Eagle Lake, Tex., sold 97,000 pounds of pecan nuts at eight and a quarter cents per pound. This was the largest sale of its kind that had ever been made in that city.

When there is little dew it is a good plan to begin hay-cutting at daylight and get a day's mowing done in time for Old Sol to put in his best licks curing the hay while the mowers are resting in the shade.

The quantity of nitrogen in the leaves of forage is greatly reduced on dull days and when the temperature is low; hence the greatest accumulation of that element will be on the afternoons of days that are bright and warm.

A scientific writer says that the stripes of the zebra are a great protection to it, because they blend so completely and are so in harmony with the general locality that it infests that it can hardly be seen even at moderate distances.

Powhatan County, Va., recently suffered from a pest of forest insects, much valuable timber being destroyed. A landmark in the Old Dominion which was visible for 20 miles around was destroyed. It was known as the Pope's pine.

Now is the time to think very strongly about silos, and follow the thinking with action. A great deal of corn has been planted late, and the entire food value of much of it can only be secured by the silo. It will bring golden returns next Winter.

It is a mistake to lay drains diagonally across a sloping surface. They should run directly up and down.

Diagonal drains are much longer, more expensive, and do their work more imperfectly than the straight up and down drains.

The problem about permanent hired help is to furnish constant employment the year round. Some farmers have tried, with success, raising broom-corn, and keeping their help employed in making brooms when out-door work was impossible.

Papers read before the Royal Statistical Society in London show that the proportion of arable to pasture lands in England, which 20 years ago were as three to two, are now about equal; the pasture lands have increased. British agriculture has suffered serious depression since 1879.

A practical and economical way of drying small quantities of grain is to place in the bins freshly burned soft bricks that have not absorbed any moisture. They can be used at the rate of one brick to the bushel of grain. The bricks should of course be clean, and not have any sand or dirt on them.

Farmers of the South who have been using crab-grass for fodder have come to the conclusion that as healthy and good-looking animals can be turned out by the use of this food as by the use of the common timothy hay. Livery-stable men of Mobile use, almost without exception, this grass for their horses.

Dr. Sturtevant's experiments have shown that after corn has reached a certain stage weeds and other growths can do it no harm. Therefore, rye, wheat, or grasses can be safely sown in the rows at the last hoeing. The only question is whether with a heavy crop of corn these can get enough sunlight.

California has a new idea in fuel. It is peach stones. In places where the canning and drying industries are pursued peach stones lie about by the car load, and it has occurred to some genius to utilize them for burning. They make a fragrant, brightly-burning fire, which gives out as much heat as the same amount of coal.

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ANTI-OPTION.

Full Text of the Washburn-Hatch Bill, Now Before Congress.

A BILL defining "options" and "futures" and imposing special taxes on dealers therein, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That for the purposes of this act the word "options" shall be understood to mean any contract or agreement whereby a party thereto, or any party for whom or in whose behalf such contract or agreement is made, acquires the right or privilege, but is not thereby obligated, to deliver to another or others, at a future time or within a designated period, any of the articles mentioned in section three of this act.

Sec. 1. That for the purposes of this act the word "futures" shall be understood to mean any contract or agreement whereby a party contracts or agrees to sell and deliver to another, at a future time, or within a designated period, any of the articles mentioned in section three of this act, when, at the time of making such contract or agreement, the party so contracting or agreeing to sell and make such delivery, or the party for whom he acts as agent, broker, or employee in making such contract or agreement, is not the owner of the article or articles so contracted or agreed to be sold and delivered: Provided, however, That this act shall not apply to any contract or agreement for the future delivery of any of said articles made for and in behalf of the United States, or of any State, Territory, County, or municipality, with the duly authorized officers or agents thereof, nor to any contract or agreement made by any farmer or planter for the delivery at a future time, or within a designated period, of any of said articles, which are in actual course of production at the time of making such contract or agreement, on land then owned or occupied by such farmer or planter.

Sec. 2. That the articles to which the foregoing sections relate are wheat, corn, oats, barley, rye, pork, lard, bacon, and other edible product of swine, grass seeds, and flaxseed.

Sec. 3. That special taxes are imposed as follows: Every dealer in "options" or "futures," as hereinafter defined in this act, shall pay annually the sum of \$1,000 as a license fee for conducting such business, and shall also pay the further sum of five cents per pound for each and every pound of pork, lard, bacon, or other edible product of swine, and the sum of 20 cents per bushel for each and every bushel of any of the other articles mentioned in section three of this act, the right or privilege of delivering which to another or others at a future time or within a designated period may be acquired by such dealer in his own behalf or in behalf of another or others under any "options" contract or agreement as defined by section one of this act, or under any "futures" contract or agreement as defined in section two of this act, which said amount or amounts shall be paid to the Collector of Internal Revenue as hereinbefore provided, and by him accounted for as required in respect to other special taxes collected by him. Every person, association, copartnership, or corporation who shall in their own behalf, or as agent, broker, or employee of another or others, deal in "options" or make any "options" contract or agreement, as hereinbefore defined, shall be deemed a dealer in "futures."

Sec. 4. That special taxes are imposed as follows: Every dealer in "options" or "futures," as hereinbefore defined in this act, shall pay annually the sum of \$1,000 as a license fee for conducting such business, and shall also pay the further sum of five cents per pound for each and every pound of pork, lard, bacon, or other edible product of swine, and the sum of 20 cents per bushel for each and every bushel of any of the other articles mentioned in section three of this act, the right or privilege of delivering which to another or others at a future time or within a designated period may be acquired by such dealer in his own behalf or in behalf of another or others under any "options" contract or agreement as defined by section one of this act, or under any "futures" contract or agreement as defined in section two of this act, which said amount or amounts shall be paid to the Collector of Internal Revenue as hereinbefore provided, and by him accounted for as required in respect to other special taxes collected by him. Every person, association, copartnership, or corporation who shall in their own behalf, or as agent, broker, or employee of another or others, deal in "futures" or make any "futures" contract or agreement, as hereinbefore defined, shall be deemed a dealer in "futures."

Sec. 5. That every person, association, copartnership, or corporation engaged in, or proposing to engage in, the business of dealer in "options" or of dealer in "futures," as hereinbefore defined, shall, before commencing such business or making any such "options" or "futures" contract or agreement, make application in writing to the Collector of Internal Revenue for the district in which he or any of them propose to engage in such business or make such contract or agreement, setting forth the name of such person, association, copartnership, or corporation, place of residence of the applicant, the business to be engaged in, where such business is to be carried on, and, in case of an association, copartnership, or corporation, the names and places of residence of the several persons constituting such association, copartnership, or corporation, and shall thereupon pay to such Collector, as a license fee for conducting such business, the sum, aforesaid, of \$1,000, and shall also execute and deliver to such Collector a bond in the penal sum of \$40,000, with two or more sureties satisfactory to said Collector, conditioned that the obligor therein shall pay, or cause to be paid, the tax or taxes as herein provided, and for the full and faithful compliance, by such obligor, with all the requirements of this act; and thereupon the Collector shall issue to such applicant a certificate, in such form as the Commissioner of Internal Revenue shall prescribe, that such applicant is authorized, for the period of one year from the date of such certificate and within such district, to be a dealer in "options" and "futures" and to make, within such district, "options" and "futures" contracts or agreements, as hereinbefore defined, and for the period specified in

such certificate the party to whom it is issued may conduct and transact the business of dealer as aforesaid. Such certificate may be renewed annually upon compliance with the provisions of this act, and any "options" or "futures" contract or agreement, as defined by this act, shall be absolutely void, as between the parties thereto and their respective assigns, unless the party acquiring for himself or another or others the right or privilege of delivering, or contracting and agreeing for himself or another or others to sell and deliver the article or articles named in such contract or agreement shall have, at the time of the making thereof, a certificate as aforesaid, authorizing the making of "options" and "futures" contracts and agreements as hereinbefore defined: Provided, however, That so long as any tax provided in this act shall remain due and unpaid, the person, association, copartnership, or corporation from whom such tax shall be due shall not, during the time such tax remains due and unpaid, conduct or transact the business of a dealer in "options," or conduct or transact the business of a dealer in "futures," and any "options" or "futures" contract or agreement made or entered into by any person, association, copartnership, or corporation from whom any sum as a tax, as provided in this act, shall remain due and unpaid, shall, as between the parties thereto and their respective assigns, be absolutely void, and every person, association, copartnership, or corporation making any such "options" or "futures" contract or agreement while any tax hereinbefore provided shall remain due from such party shall be subject to the fines and penalties hereinafter provided.

Sec. 6. That it shall be the duty of the Collector of Internal Revenue to keep in his office a book in which shall be registered a copy of each and every application made to him under the foregoing section, and a statement in connection therewith, as to whether a certificate has been issued thereon, for what period, and the names of the parties who appear as sureties upon the bond of the applicant to whom any certificate shall be issued, which book or register shall be a public record and be subject to the inspection of any and all persons.

Sec. 7. That every "options" or "futures" contract or agreement, as hereinbefore defined, shall be in writing and signed in duplicate by the parties thereto, as shall every contract or agreement for the sale and future delivery of any of the articles mentioned in section three of this act made by the owners thereof, and every such "options" contract shall state in explicit terms the time when the right or privilege of delivering the article or articles therein named shall expire; and every such "futures" contract shall state in explicit terms the day upon which or the last day of the period within which the article or articles therein contracted or agreed to be sold shall be delivered, and any and all assignments of any such contract or agreement as is herein named or defined, shall be made in writing and such assignment registered in the office of the Collector of Internal Revenue within one week of the day on which made; and any such contract or agreement not including such statement and not so made and signed, or that shall, if assigned, not be assigned in writing and the assignment thereof registered as hereinbefore provided, shall, as between the parties thereto and their respective assigns be absolutely void.

Sec. 8. That it shall be the duty of every person, association, copartnership, or corporation conducting or transacting the business of dealer in "options" or "futures" as defined by this act, to keep a book in which shall be recorded, on the day of its execution, the date of each and every "options" or "futures" contract or agreement, made or entered into in behalf of such person, association, copartnership, or corporation, or in behalf of another or others, and setting forth the name and place of business of the person, association, copartnership, or corporation in whose behalf, as vendor, such contract or agreement shall have been made, the name and place of business of the party or parties, as vendor, with whom such contract or agreement shall have been made, the kind and amount of the article or articles which are the subject of, embraced in, or covered by, each such contract or agreement, the time when the right or privilege of delivering such article or articles as are the subject of, embraced in, or covered by, any "options" contract or agreement shall expire, and the time when, or the designated period within which delivery shall be made of the article or articles which are the subject of, embraced in, or covered by, any "futures" contract or agreement; and there shall be recorded in such book the assignment of any such contract or agreement made by or in behalf of the vendor named therein and setting forth the name, residence, and place of business of the assignee named in such assignment, and it shall be the duty of the assignor of any such "options" or "futures" contract or agreement to make return or report to the Collector of Internal Revenue of the assignment of any such contract or agreement; and such book shall at all times be subject to inspection by the Collector, Deputy Collector, and Inspector of Internal Revenue, or any duly authorized agent of the Internal Revenue Department, who may take memoranda or transcript therefrom.

Sec. 9. That it shall be the duty of every person, association, copartnership, or corporation, on the Tuesday of the week next succeeding the date of the certificate issued to them authorizing the making of "options" and "futures" contracts and agreements, as hereinbefore defined by this act, and on the Tuesday of each and every week thereafter to make to the Collector of Internal Revenue for the District in which any "options" or "futures" contract or agreement shall have been made by such person, association, copartnership, or corporation full and complete return and report, under oath and in such form as the Commissioner of Internal Revenue shall prescribe, of any and all such contracts or agreements made or entered into by such person, association, copartnership, or corporation during the preceding week, embracing

any of the articles mentioned in section three of this act, together with a statement of the article or articles which are the subject of, embraced in, or covered by, each such contract or agreement, and the amounts, respectively, of each such article, and the name or names of the party or parties with whom each such contract or agreement shall have been made, and at the same time the party whose duty it shall be to make such return or report shall pay to such Collector the amount of tax provided and then due and payable of five cents per pound on each and every pound of pork, lard, bacon, or other edible product of swine, and of 20 cents per bushel on each and every bushel of any of the other articles mentioned in section three of this act which are the subject of, embraced in, or covered by, such contracts or agreements, or any of them, for which sums such Collector shall give his receipt to the party so paying: Provided, however, That in case of a failure or refusal to make the return or report herein provided the tax or taxes herein provided shall become due and payable upon the day herein provided for the making of such return or report. And such Collector shall, upon the making of such return or report, enter in a book to be kept for that purpose the date of each such "options" or "futures" contract or agreement, included in such return or report, the name, residence, and place of business of each party thereto, and whether they appear as vendor or vendee, the kind and amount, respectively, of each article the right or privilege of delivering which to another or others is thereby acquired, and the kind and amount, respectively, of each article thereby contracted and agreed to be sold and delivered to another or others, the date upon which each such "options" or "futures" contract or agreement shall by its express terms expire or mature, and the amount of tax upon the article or articles the right or privilege of delivering which is acquired, or that shall have been contracted or agreed to be sold and delivered as aforesaid, and any and every assignment of any "options" or "futures" contract or agreement which shall have been reported to him as hereinbefore provided, which book or register shall be a public record, subject to the inspection of any and all persons; and it shall be the duty of the Collector of Internal Revenue, on the first day of each calendar month, to make a report to the Commissioner of Internal Revenue setting forth the number of "options" and "futures" contracts and agreements, as shown by such book, which had not expired or matured on the last day of the preceding month, the kind and the amount of the articles which are the subject of, or embraced in, or covered by, such contracts or agreements, and the amount of taxes levied thereon; and a copy of such report shall be kept in the office of the Collector of Internal Revenue and be subject to the inspection of any and all persons.

Sec. 10. That every person, association, copartnership, or corporation engaged in or proposing to engage in the business of making contracts or agreements for the sale of any of the articles described in section three of this act, to be delivered at a future day or designated period and based upon the actual ownership of the articles described in section three of this act, or as agent, factor, or representative of any other person, association, or copartnership or corporation actually in the ownership thereof, at the time of such contracts or agreements and for and with the bona fide intention and purpose to make such future delivery of any such article so sold under such "futures" contract or agreement, shall, before commencing such business or making any such "futures" contract or agreement, make application in writing to the Collector of Internal Revenue for the district in which he or any of them propose to engage in such business, setting forth his or their names, residence, and place of business, as specified in section five of this act, and shall thereupon pay to such Collector the sum of \$5 as a license fee for conducting the business as described in this section; and thereupon the Collector shall issue to such applicant a certificate, in such form as the Commissioner of Internal Revenue shall prescribe, that such applicant is authorized, for the period of one year from the date of such certificate, and within such district, to be a dealer in "futures" contracts or agreements as described in this section, and for the period specified in such certificate the party to whom it is issued may conduct and transact the business of dealer as aforesaid. Such certificate may be renewed annually upon compliance with the provisions of this act. It shall be the duty of every person, association, copartnership, or corporation licensed under this section to keep and record the transactions and business described in this section in the manner and form prescribed by section eight of this act, and to make weekly report thereof to the Collector of Internal Revenue for the district in which such license to do business is granted, in the manner and form prescribed by section nine of this act; and refusal or failure to pay the license tax by this section imposed shall subject the party or parties doing the business described by this section to a fine of \$50 for each and every day's transaction of such business without such license tax being previously paid; and the refusal or failure of any such party or parties to keep the record of sales or "futures" contracts or agreements made by them for themselves or as agent, broker, or employee of another or others, as prescribed in section eight of this act, or to make report thereof to the Collector of Internal Revenue for the district in which such business is transacted by him or them, as required by section nine of this act, shall subject the party or parties so offending to the fines imposed by section eleven of this act and to the enforcement and collection thereof as prescribed by section thirteen of this act.

Sec. 11. That it shall be the duty of the Collector of Internal Revenue for any district within which any contract or agreement shall be made for the sale and delivery at a future time, or within a designated period, of any of the articles mentioned in section three of this act, or by or in behalf of the owners thereof, or in behalf of a party or parties assuming or claiming to be the owners thereof, when it shall come to the knowledge of such Collector or he shall have reason to believe that the party or parties in whose behalf, as vendors, such contract or agreement shall have been made were not, at the time of making thereof, the owner or owners of the article or articles thereby contracted or agreed to be sold and delivered, to require that the party or parties in whose behalf, as vendors, such contract or agreement had been made to furnish proof of their ownership of such article or articles at the time when such contract shall have been made, which, for the purposes of this act, shall be done by filing with such Collector the affidavit of such party or parties, alleging such ownership, which shall set forth the fact of such ownership, the warehouse, mill, or other place where such property is then stored, or if the same shall then be in the possession of any common carrier by railroad or vessel for transportation shall recite the name of such carrier and give the number and date of each separate bill of lading or receipt issued by such carrier therefor and the amount or quantity of the particular article therein received for. Such affidavit shall further recite the quantity or amount of such article then actually owned by such affiant or affiants and the amount or quantity of all outstanding contracts for sale thereof made by him or them or on his or their behalf by any agent, factor, broker, or employee; and upon the demand of the Collector of Internal Revenue such party or parties shall be required to produce such further proof of ownership of said articles by exhibiting the warehouse receipts or bills of lading therefor, or otherwise, as the Commissioner of Internal Revenue shall prescribe; and in case of a failure or refusal to make, in the manner prescribed, such proof of ownership when so required, the party in whose behalf as vendor such contract or agreement shall have been made shall pay to such Collector a tax of five cents per pound on each and every pound of pork, lard, bacon, or other edible product of swine, and twenty cents per bushel on each and every bushel of any of the articles mentioned in section three of this act which are the subject of, embraced in, or covered by, such contracts and agreements, or any of them: for which sums such Collector shall give his receipt to the party so paying, and such Collector shall account for such sums as required in respect to other special taxes collected by him.

Sec. 12. That every person who shall in his own behalf, or in behalf of any other person, association, copartnership, or corporation, make or enter into as vendor any "options" or "futures" contract or agreement, as defined by this act, without having a certificate of authority from the Collector of Internal Revenue, as hereinbefore provided, and covering the time which such contract or agreement shall be made, or who shall fail or refuse to keep any book or make any record, return, or report required by this act, or in lieu of any record, return, or report required by this act shall make a false, fraudulent, or partial record, return, or report, or shall make any "options" or "futures" contract or agreement in form or manner other than as prescribed by this act, or shall fail or refuse to pay, when due, any tax herein provided, or shall present to the Collector of Internal Revenue any false, fraudulent, or simulated proof of ownership of any of the articles the subject of, embraced in, or covered by, any contract for the sale and delivery, at a future time, of any of the articles mentioned in section three of this act, or shall fail to make such proof when required, as hereinbefore provided, or shall as vendor and as owner make and enter into any such contract or agreement without owning the article or articles so contracted or agreed to be sold and delivered at a future time, or shall fail or refuse to comply with any of the provisions of this act, or that shall in any respect violate any of such provisions, shall besides be liable for the amount of the tax or taxes prescribed in this act, for each and every offense pay a fine of not less than \$1,000 nor more than \$20,000, or be imprisoned not less than six months nor more than 10 years, or be subject to both such fine and imprisonment.

Sec. 13. That neither the payment of the tax hereinbefore provided nor the certificate issued by the Collector of Internal Revenue under this act shall be held to exempt any person, association, copartnership, or corporation from any penalty or punishment now or hereafter provided by the laws of any State or Territory for making contracts or agreements such as hereinbefore defined as "options" or "futures" contracts or agreements, or in any manner to authorize the making of such contracts or agreements within any State, Territory, or locality contrary to the laws of such State, Territory, or locality; nor shall the payment of the taxes imposed by this act be held to prohibit any State, Territory, or municipality from placing a tax or duty on the same trade, transaction, or business for State, Territorial, municipal, or other purposes.

Sec. 14. That all provisions of the law now in force relating to the recovery and enforcement of taxes, fines, and penalties imposed under the laws concerning Internal Revenue and not inconsistent with the provisions of this act are hereby made to extend and apply to the recovery and enforcement of the taxes, fines, and penalties imposed by this act.

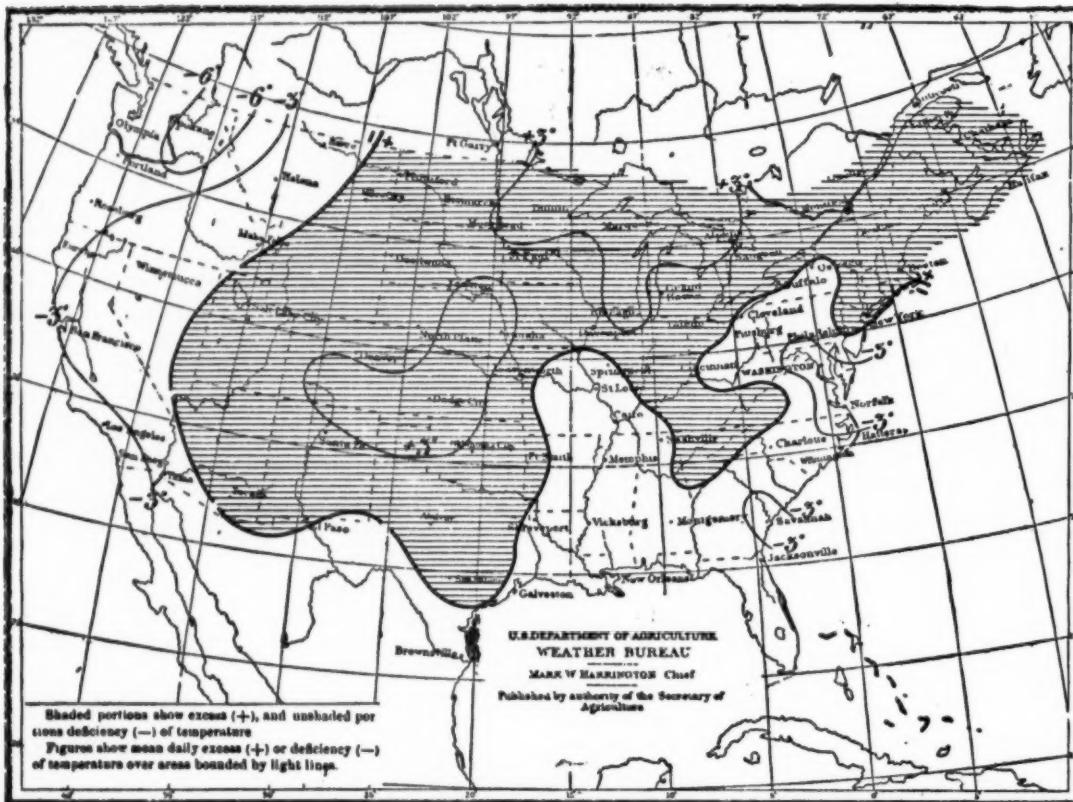
Sec. 15. That the Commissioner of Internal Revenue shall prescribe such rules and regulations as may be necessary to carry into effect the provisions of this act, and when such rules and regulations shall have been approved by the Secretary of the Treasury they shall have the force and effect of law.

The Legislature of New York recently appropriated \$100,000 for premiums at agricultural fairs, but the measure was vetoed by Gov. Flower, on the grounds that part was given for racing, which is not a legitimate premium.

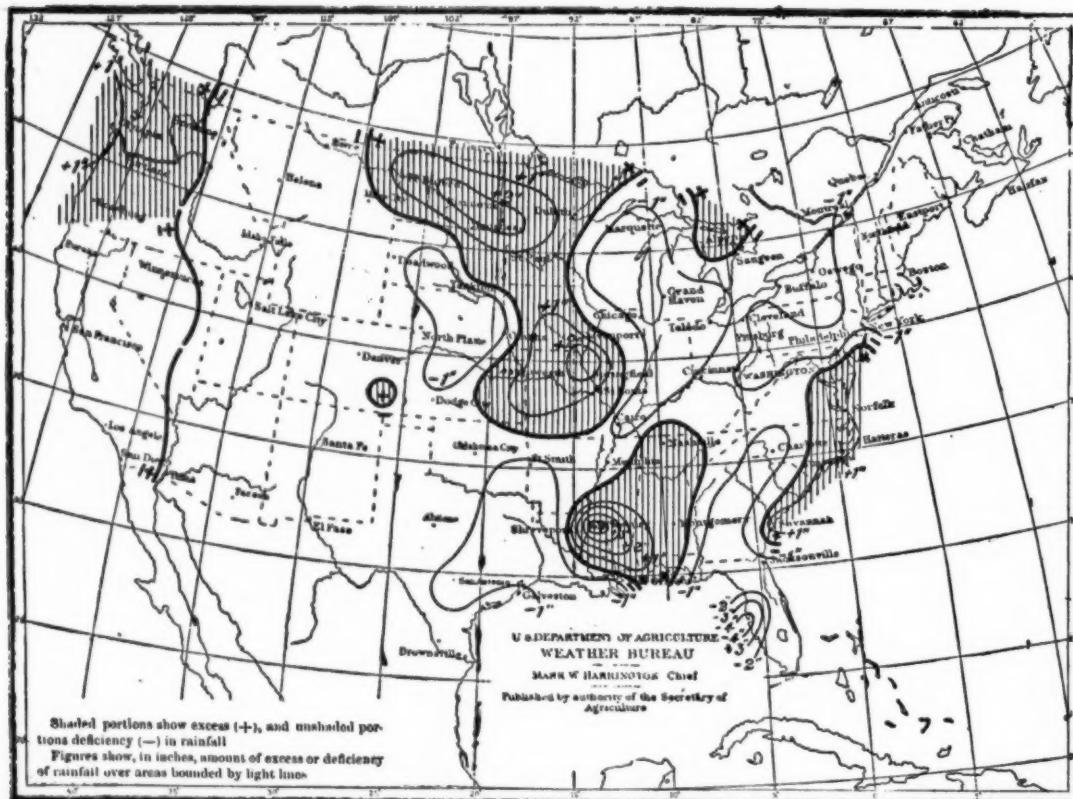
U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

Weather-Crop Bulletin for the Two Weeks Ending July 25, 1892.

Temperature Departures for the Two Weeks Ending July 25, 1892



Departures from Normal Precipitation for the Two Weeks Ending July 25, 1892.



U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU,
WASHINGTON, D. C., Aug. 1, 1892.

TEMPERATURE.

During the two weeks ending July 25 the temperature was above the normal over the central Rocky Mountain districts and from the Upper Missouri Valley eastward to the Lower Lakes, the excess amounting to from three degrees to four degrees over portions of Colorado, Kansas, Nebraska, Minnesota, and the Upper Lakes. It was cooler than usual on the Pacific Coast, in the Middle Atlantic States, and throughout the southern portions of the country. East of the Rocky Mountains the first week of the above period was, in general, cool, but the second week was unusually warm, except along the South Atlantic and Gulf Coasts, where it was somewhat cooler than usual. While over much of the country east of the Rocky Mountains the temperature conditions of the two weeks were in marked contrast, the first week being cool and the second very warm. On the Pacific Coast cool weather prevailed during both weeks, the deficiency for the 14 days averaging from three degrees to six degrees.

PRECIPITATION.

From July 11 to 25, 1892, more than the usual amount of rain fell over portions of the Central and Lower Mississippi Valleys, Minnesota, the Dakotas, and along the immediate Atlantic Coast from Southern New Jersey to Georgia, and on the North Pacific Coast, the most marked excess occurring in the Lower Mississippi Valley in the vicinity of Vicksburg, where there was more than six inches of actual rainfall. Elsewhere the rainfall was less than usual, there being a general deficiency from the Lake Region southward to Florida, and from Texas westward to Arizona. In California and the Rio Grande Valley no rain fell during the two weeks.

California Horticulturists.

The annual meeting of the California State Board of Horticulture took place in San Francisco July 19. Elwood Cooper, of Santa Barbara, the pioneer olive-oil maker, was re-elected President; Fred Miles, of Placer, was chosen Treasurer; J. L. Mosher, of San Jose, a leading producer and packer of dried fruits, was re-elected Auditor, and B. M. Le-Long, Secretary. The address of the President dealt severely with the railroad extortions, which are robbing farmers of their just profits. In some cases money had to be sent East to pay for freight deficiencies; the producers losing everything and borrowing money to pay exorbitant railroad charges. The Secretary recommended more legislation for the protection of horticulturists. Among these needs are a law to cover defects in the present law in regard to the adulteration of olive oil and forbidding the sale of olive oil under false labels; a law to prevent the wholesale adulteration of fertilizers, the market value of which is less than sand, and a law to prohibit the sale of inferior and infected fruit in packing-boxes that have already been used by respectable fruit growers or packers.

The date of the Convention at San Jose was fixed for Nov. 15-18.

THE MARKETS.

NEW YORK, July 27, 1892.

Butter.—Although the receipts of butter have been large and the weather warm, prices were firmly maintained. Choice imitation creamery is rather scarce. Inferior qualities are neglected.

State dairy, half-firkin tubs, fancy, per pound.....	21 a21
State dairy, half-firkin tubs, good to choice, per pound.....	19 a20
State dairy, half-firkin tubs, fair to good, per pound.....	18 a19
Welsh tubs, fancy, per pound.....	18 a19
Welsh tubs, good to choice, per pound.....	16 a17
Eastern creamery, fancy, per pound.....	22 a22
Eastern creamery, choice, per pound.....	20 a21
Eastern creamery, fair to good, per pound.....	18 a20
Eglin creamery, fancy, per pound.....	18 a22
Pennsylvania creamery, fancy, per pound.....	18 a22
Western creamery, fancy, per pound.....	22 a22
Western creamery, choice, per pound.....	20 a21
Western creamery, new, fair to good, per pound.....	18 a20
Western dairy, new, choice, per pound.....	17 a18
Western dairy, new, good, per pound.....	15 a16
Imitation creamery, fancy, per pound.....	18 a19
Imitation creamery, good to choice, per pound.....	17 a18
Imitation creamery, fair to good, per pound.....	18 a17
Factory, fresh, choice, per pound.....	14 a16
Factory, fresh, medium to good, per pound.....	14 a16

Cheese.—Fancy cheese is quite firm. A few lots of fancy colored sold for 9c. Part skims are easy. Full skims are dull. The quotations to-day from Liverpool, as reported by cable, are 4s 6d to 4s 4d.

State factory, new, fancy, white, per pound.....	8 a28
State factory, new, fancy, colored, per pound.....	8 a29
State factory, new, full cream, choice, per pound.....	8 a28
State factory, new, fair to prime, per pound.....	7 a28
State factory, part skims, choice, per pound.....	7 a28
State factory, part skims, fair to good, per pound.....	6 a28
State factory, full skims, per pound.....	7 a28

VEGETABLES.

NEW YORK, July 27.

Beans and Peas.—The market for beans is quite firm to-day, and prices have advanced. Green peas are steady.

Beans, marrow, choice.....	22 15 a22
Beans, marrow, poor to fair.....	15 a20
Beans, medium, choice.....	15 a18
Beans, pea, choice.....	15 a18
Beans, red kidney, choice.....	240 a245
Beans, red kidney, poor to fair.....	150 a200
Beans, white kidney, choice.....	250 a250
Beans, yellow eye, choice.....	155 a175
Lima beans, California, per pound.....	200 a170
Green peas, barrels, per bushel.....	165 a170
Green peas, bags, per bushel.....	165 a160
Green peas, Scotch, per bushel.....	175 a160

The market for potatoes was quiet to-day. Sweet potatoes are rather scarce. Prime onions are steady. Cabbage is firmer. Tomatoes are plentiful, but prices are steadily maintained. String beans and green peas are quiet. Cucumbers are plentiful and prices are easy.

Potatoes, North Carolina, Rose, prime, per barrel.....	15 a17
Potatoes, North Carolina, Chile red, prime, per barrel.....	125 a150
Potatoes, Norfolk, Rose, prime, per barrel.....	137 a162
Potatoes, Norfolk, Chile red, per barrel.....	125 a150
Potatoes, Southern, seconds, per barrel.....	75 a100
Potatoes, Long Island, per barrel.....	150 a175
Potato s, Eastern Shore, Rose, prime, per barrel.....	150 a175
Potato s, Eastern Shore, Chile red, prime, per barrel.....	125 a150
Sweet potatoes, North Carolina, red, per barrel.....	200 a250
Sweet potatoes, North Carolina, yellow, per barrel.....	300 a500
Onions, Connecticut, white, per barrel.....	250 a300
Onions, Connecticut, red, per barrel.....	250 a300
Onions, New Jersey, yellow, per barrel.....	250 a275
Onions, Orange County, red, per barrel.....	175 a225
Onions, Kentucky, per barrel.....	50 a25
Onions, Virginia and Maryland, per barrel.....	25 a25
Onions, Virginia and Maryland, per basket.....	12 a12
Onions, Tennessee, per barrel.....	300 a400
Cabbage, Long Island and New Jersey, flat Dutch, per 100.....	150 a250
Cabbage, Long Island and New Jersey, Wakefield, per 100.....	150 a250
Tomatoes, Norfolk, Grant, per crate.....	40 a50
Tomatoes, Norfolk, Acme, per crate.....	40 a50
Tomatoes, Delaware and Maryland, per carrier.....	100 a150
Tomatoes, near-by, per box.....	100 a175
Tomatoes, south, New Jersey, per box.....	100 a175
Squash, white, per barrel.....	25 a40
Squash, Long Island, crook-neck, per barrel.....	75 a100
String beans, Long Island, per bug.....	50 a75
Cucumbers, Long Island, per 100.....	75 a100
Cucumbers, Norfolk, per barrel.....	100 a200
Cucumbers, New Jersey, per box.....	75 a100
Cucumbers, Maryland, per basket.....	50 a75
Green peas, Long Island, per bag.....	75 a125
Green peas, New Jersey, per bag.....	75 a100

HONEY AND WAX.

Beeswax, Western, pure, per pound.....	20 a27
Beeswax, Southern, pure, per pound.....	27 a28
Beeswax, West Indies, per pound.....	26 a28
Honey, white clover, one-pound boxes, per pound.....	10 a12
Honey, white clover, two-pound boxes, per pound.....	8 a10
Honey, white clover, inferior, per pound.....	6 a8

Honey, buckwheat, one-pound boxes, per pound.....	8 a10
Honey, buckwheat, two-pound boxes, per pound.....	6 a8
Honey, extracted, State, per pound.....	7 a7
Honey, extracted, California, per pound.....	60 a70

POULTRY AND EGGS.

Prime live ducks and geese are steady. Live chickens and fowls are easy. The market for dressed poultry was generally quiet to-day. Prime chickens and fowls were held with confidence. Turkeys are quiet. Ducks are easy. Game squabs are rather firm.

LIVE POULTRY.

Geese, Western, per pair.....	21 23 a21
Geese, Southern, per pair.....	12 a2
Turkeys, mixed, per pound.....	10 a10
Ducks, Eastern, per pair.....	70 a90
Ducks, Western, per pair.....	65 a80

CHICKENS.

Chickens, Spring, near-by, per pound.....	15 a18
Chickens, Spring, Western, per pound.....	14 a16
Chickens, Spring, Southern, per pound.....	14 a15
Fowls, State, New Jersey and Pennsylvania, per pound.....	14 a14
Fowls, Western, per pound.....	14 a14

DRESSED POULTRY.

Chickens, Philadelphia, broilers, three to three and half pounds per pair, per pound.....	22 a23
Chickens, Philadelphia, mixed weights, per pound.....	19 a21
Chickens, Western, broilers, dry-picked, mixed weights, per pound.....	18 a19
Chickens, Western, dry-picked, small, per pound.....	16 a17
Chickens, Western, broilers, scalped, mixed weights, per pound.....	18 a19
Chickens, Western, broilers, scalped, small, per pound.....	16 a17
Fowls, Western, dry-picked, per pound.....	13 a17
Fowls, Western, scalped, per pound.....	13 a17
Old roosters, per pound.....	12 a13
Turkeys, mixed weights, per pound.....	14 a9
Turkeys, inferior, per pound.....	12 a13
Ducks, Spring, Eastern, per pound.....	18 a19
Ducks, Spring, Long Island, per pound.....	18 a19
Geese, Spring, Eastern, per pound.....	18 a19

Eggs.—The market for eggs was quiet to-day on account of the hot weather, and prices of inferior eggs were fluctuating and uncertain. We quote:

Eastern, choice, loss off, per dozen.....	17 a7
Western, choice, loss off, per dozen.....	16 a10
Western, good, loss off, per dozen.....	16 a10
Western, inferior, per dozen.....	15 a16

COTTON.

NEW YORK, July 30.

In the absence of Liverpool advices the transactions were small, but two factors conspired to bring about an advance, namely, unfavorable crop reports and a dispatch from Washington to the effect that Senator Washburn will offer a motion to let the Hatch bill go over until December, and this caused some advance both here and in Chicago. Paris was steady for flour and wheat. The English country markets were quiet. Bulls are watching the progress of the cholera in Russia. Future sales 1,205,000 bush., as follows:

Month.	Closing Prices.	Highest.	Lowest.	Sales.
Aug.	7.40 a7.41	7.41	7.39	700
Sept.	7.45 a7.46	7.47	7.40	5,900
Oct.	7.46 a7.57	7.57	7.52	9,900
Nov.	7.46 a7.67	7.67	7.63	2,100
Dec.	7.60 a7.77	7.77	7.72	2,700
Jan.	7.86 a7.97	7.97	7.82	4,800
Feb.	7.93 a7.97	7.97	7.94	700
March	8.00 a8.07	8.07	8.01	400
April	8.15 a8.16	8.16	8.15	...

NEW ORLEANS, July 30.

Cotton steady; middling, 7 3-16; low middling, 6 11-16; good ordinary, 6 3-16.

GALVESTON, July 30.

Cotton steady; middling, 7 1/2c; low middling, 6 1/2c; good ordinary, 6 1/2c.

SAVANNAH, July 30.

Cotton firm; middling, 7 3-16; low middling, 6 1/2c; good ordinary, 6 1/2c.

WOOL.

BOSTON, July 30.

The wool trade this week has been quite unevenly distributed, some dealers making a heavy report, partly of old sales, while others have had a very quiet week. Leaving aside the question of the reports upon previous orders but just delivered, there is quite a healthy volume of trade, though this week rather less active. The conviction upon which manufacturers seem to be acting is that the price of wool is very low, and there is, therefore, good reason to purchase if they wish to do so, and little risk to run, but they are not paying higher prices for wool, simply because there is no reason why they should do so.

Some dealers are trying to talk the market up, now that they are through with the farmer, but despite their statements wool is not any higher. We gave last week the reasons the same dealers have for hoping for an advance, but manufacturers are not paying high prices for wool simply because the good trade is better, and they have orders to run their mills for some time. So long as wool can be bought at present prices, and there is plenty of it, there is no need of paying an advance. When dealers hold very stiffly for an advance the buyers try elsewhere, but so far it has not been necessary, as dealers

have been willing to sell at prices prevailing so long as it pays them some profit, as it does. This is really a healthy condition of affairs, and those dealers that are not in a speculative mood but willing to do business have no fault to find, even with the low prices ruling. There is little reason to expect the market to fall off, as the demand for wool is too considerable and no weakness noted, but at the same time values are no better.

We quote the selling prices of the market for leading descriptions, as follows:

	Cents.
Ohio and Pennsylvania No. 1 fleece.....	32 a34
Ohio and Pennsylvania X.....	26 a27
Ohio and Pennsylvania XX and above.....	29 a30
Michigan X.....	25 a26
Michigan No. 1.....	32 a33
Combining, No. 1.....	35 a36
Combining, No. 2.....	33 a34
Kentucky and Ind. 4-blood combing.....	26 a27
Kentucky and Ind. 4-blood combing.....	25 a26
Missouri 4-blood combing.....	26 a27
Missouri fine.....	32 a21
Delaine, Michigan fine.....	29 a30
Montana fine.....	14 a24
Wyoming fine.....	14 a21
Wyoming medium.....	14 a22
Kansas and Nebraska fine.....	13 a16
Kansas and Nebraska medium.....	16 a13
Georgia.....	25 a26
Texas Spring medium, 13 months.....	20 a23
Texas Spring fine, 12 months.....	18 a21
Texas Spring fine, six to eight months.....	17 a20
Texas Spring medium, six to eight months.....	21 a23
Texas Fall.....	14 a20
Kentucky 4-blood clothing.....	24 a25
Kentucky 4-blood clothing.....	26 a27
Unwashed fine Ohio and Michigan.....	17 a20
Unmercantile Ohio.....	20 a21
Unmercantile Michigan.....	19 a20
Lambs super pulled.....	34 a40
Super pulled.....	30 a44
Extra pulled.....	26 a34
Canada pulled.....	28 a32
Western super.....	25 a30
California Spring.....	14 a24
Call orna. Fall.....	10 a16
Oregon east.....	15 a19
Oregon fancy.....	20 a22
Oregon fine valley.....	17 a21
Oregon medium valley.....	24 a25
Montevideo.....	27 a30
Au tralian and New Zealand.....	32 a41
Foreign carpet.....	12 a12

GRAIN AND BREADSTUFFS.

NEW YORK, July 30.

Flour was nominally unchanged, with the usual light Saturday's business.

Grain.—Wheat opened steady, then declined a trifle, but later on recovered the lost ground, and before the close of Change advanced to. There were no cables, and the transactions were light. Operators were cheered by the report, however, that the Hatch bill will go over until December, and this caused some advance both here and in Chicago. Paris was steady for flour and wheat. The English country markets were quiet. Bulls are watching the progress of the cholera in Russia. Future sales 1,205,000 bush., as follows:

Month.	Open- ing.	Low- est.	High- est.	Clos- ing.

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**Where Reciprocity is Needed.**

This is the season of the year
When down to Farmer Smith's there come
His city cousins, the De Smythes,
Prepared to make the welkin hum.

There's old De Smythe and Mrs. D.,
Their daughters, May and Jane and Sue,
And Tom and Dick and Ned and Jack,
Two babies and a nurse or two.

With bag and baggage they arrive,
With many a massive, monstrous trunk,
For much they love their Cousin Smith,
And they have come a month to bulk.

They take the ancient house by storm;
They own the farm from fence to fence,
And loud the gay De Smythes aver,
"Now, really, this is just immense!"

The boys all ston the cows for hours,
The girls the chickens drive away,
Their papa takes the old farm plugs
And drives them all the livelong day.

But when to see their city kin
At Christmas time the Smiths presume,
They'll find them living in a flat,
Without as much as standing room.
—Boston Courier.

Very Fertile Land.

Real Estate Agent—Yes, sir; this land will raise any crop, no matter what it is. Fertile land do you ask? I can prove it.

Prospector—How?

Real Estate Agent—See that barrel?

Prospector—Yes.

Real Estate Agent—Last night that was a keg.

His Waterloo.

Mr. Gatchy (with a desire to be tough)—We had some awfully stiff playing at the club last night.

Miss Callowhill—Indeed?

Mr. Gatchy—Ya-aa.

Miss Callowhill—Which game do you prefer—battledore, little Sally Waters, or puss in the corner?

"I'm breasting the tide of hunger," the epicur said as he carved the uproaring chest of the turkey.

Very Ancient.

Julia—I don't think you ought to grumble at mother's pastry, George; she made pies before you were born.

George—No doubt. This must have been one of them!—*Black and White.*

Original Sin.

Mr. Clineus—Never forget the lesson of the first man, Miss Trotter, and his punishment for his presumption.

Miss Trotter—No, poor fellow! I really liked him, but it would never have done to have accepted the very first. He was punished, indeed.

Evidently the cares of country publications are great. In winding up the *Lane County (Kan.) Farmer*, the editor says: "With malice toward none and charity for all, I retire from the publication of this paper, and am ready for a soft job in the harvest field."

The Long and Short of It.

Friend—Don't be downhearted, old fellow; remember the saying, "Art is long."

Dauber—Yes, and artists are usually short.

Valuable Advice.

Bellows—Now, if you were in my shoes, what do you think you would do?

Breeze (examining them)—Well, I certainly think I should get another pair.—*Boston Courier.*

A Bad Case of Absent-Mindedness.

Farmer Jones meditates.



(Sudden activity.)

"Ow! Great Gosh—snakes!"

He Skimmed It.

Quester—Did you read the latest production of your friend Weatherly?

Jester—What book do you refer to?

Quester—That one on the milk products of our country. It is worthy a careful perusal.

Jester—I differ with you. The subject seemed merely to invite my skimming it over.

Arraigning the West.

Mrs. Sapmind—Well, I do declare! Them Western folks is growin' crazy.

Mrs. Lisner—Why, what's the matter now?

Mrs. Sapmind—Matter enough. Here's an article in this paper about "Lynching bees out West." When folks haven't got nothin' better to do 'an go around lynchin' bees, I've got my opinion of 'em.—*Boston Courier.*

At the Picnic.

She—Don't you think Mr. Jones a very fetching young man?

He—Very; he's fetching the ice cream this way now.

Afraid of the Yankees.

Mr. Isaacstein, of New York, returned home very late one night, and Mrs. Isaacstein asked:

"Shakey, where you got all dot tobacco stain on your shirt front?"

"Blaying draw poker mit three shentlemen from New England, Rachel."

"Vell, couldn't you turned your head to one side ven you spit?"

"Not mit dose fellers."—*New York Sun.*

A Fruitless Search.

Quester—Is it true that Blinker's gone away in search of health?

Jester—Yes, but it will prove a fruitless search.

Quester—Why?

Jester—Because he's a detective; he never could find anything that he was looking for.—*Boston Courier.*

At this season of the year
This thought will absorb us—
Go buy a big watermelon
And have the cholera morbus.

FOR SALE,
WANTS, EXCHANGES, ETC.

THE AMERICAN FARMER wants to become the medium of free communication of farmers with one another, and by which they can state their wants and have them supplied, the same as city people do in the daily papers. We have therefore established this column for the express use of subscribers to the paper. No other will be allowed access to it. The rates for advertising in it will be merely nominal—one cent a word each insertion. No "wants," "exchange," "for sale," or similar notices will be inserted more than twice. If desired oftener, it must go into the regular advertising columns at the usual rates. All our readers who want situations, or to employ help, or to exchange farming implements, stock, seeds, etc., are invited to use the column freely.

In replying to these advertisements, please mention that they were seen in THE AMERICAN FARMER, of Washington, D. C.

TERMS One cent a word each insertion. No notice to be inserted more than twice. No notice accepted at these rates except from subscribers to the paper.

FOR SALE—One No. 3 Appleton Mfg. Co. Price F. Pulley Mill; one Cyclone Corn and Cob Crusher, same make. Price \$40. f. o. b. for cash, for both mills. E. D. HEINEMANN, Imands P. Co., Bunceton, Mo.

WANT TO BUY—Six good Jerseys, three to six years old. Address, with description, P. O. Box W. Holyoke, Mass.

JERSEY BULL—Prince of Orchard Home. Four years old; Euros blood. Gestic. Only sold to prevent inbreeding. Address, for pedigree and price, J. SPENCER HOBSON, Kinderhook, N. Y.

FOR SALE—Three (3) thoroughbred registered Jersey bulls, one year old. Apply to JAS. D. BUCKWALTER, Douglassville, Bucks Co., Pa.

WANTED—A married man, sober, industrious, and handy, to work on nursery and farm, to board men. References required. ARTHUR J. OOLLINS, Moorestown, N. J.

WANTED—Two Protestant young men; good milchers understanding cattle and farm work; also driving oxen. References required. Address MURRAY, Station D, New York City.

WANTED—Good man to take care of horses, stables, carriages, etc. Wages according to services rendered, starting with \$20 per month and board. A. C. BURGESS, Carlton Place, Ont., Canada.

SITUATION WANTED—A married man, no family, thoroughly understands poultry-raising in all branches; also capable of taking full charge of dairy, desires situation. Address P. O. BOX 200, Dobbs Ferry, N. Y.

SITUATION WANTED—As superintendent, manager, or assistant on a stock or large farm, by a middle-aged man of education and refinement. Writes a good hand, and is acquainted with book-keeping. Understands management of steam engine and boiler, windmills, pumps, and hydraulic ram, and good general mechanic. References several banks and numerous business men. Address H. R. P. O. Box 154, Washington City, D. C.

FOR SALE—To close an estate. Farm of 40 acres, highly-cultivated land, in Kennebec County, Me. Stocked with 30 head of thoroughbred Southdown sheep. Ten minutes' walk from post-office, in city of 1,000 inhabitants. For further particulars, address GEO. K. BOUTELLE, Waterville, Me.

WANTED—Man and Wife. Man to do general farm work, wife to do general housework. To reliable parties a permanent home and good wages. F. L. PAYNE, Bailey's Cross Roads, Fairfax Co., Va.

WANTED—A Married Farmer for a Dairy and Truck Farm near Old Point Comfort, Va. He must be a good milker, if necessary. For an acceptable man liberal arrangements will be made for the future. Address, M. C. A., Hampton, Va.

A. AMERICAN, aged 45, good education, 15 years' experience with cattle—Jersey, Ayrshire, Holstein, and native—would like a situation with some party who not only takes a pleasure and pride in his cattle, but also has an eye to profits. Best of references as regards sobriety, industry, honesty, and ability. Address, W. PARKTON, Baltimore County, Md.

FOR EXCHANGE—A Six-octave Gilbert Piano for fresh milk cows. 711 Madison street, Topeka, Kan.

WANTED—A Second-hand Chain-fed Broom-corn Scraper. S. G. JOHNSTON, Warren, Sherman County, Kan.

FOR SALE—160-acre farm at a bargain. One-third cash, balance long time if desired. Four-room house, plenty of timber. Livestock, 20 acres in crops, close to town. With residence in same. Price \$12,000. Also quarter section of grass land. Some stock and implements cheap. Address BOX 145, Toronto, N. Y.

FOR SALE VERY CHEAP—A two-horse tread-power threshing machine. Both power and separator mounted on frame. Only about two years old. It is in complete running order. Some extra and tally-box. Will thresh 300 bushels of wheat and 400 bushels of oats in reasonably good grain in one day; threshes all kinds of grain, millet, and timothy. The power alone is worth all I ask for the entire outfit for many uses on the farm. It will twice pay for itself in one season. Will give time with approved security, if desired. CRAWFORD MOORE, Tonganoxie, Kan.

A RARE BARGAIN—For sale a first-class hotel in a & No. 1 manufacturing town, close to Chicago; 100,000 people the year round. The right party can make big money. Will accept land in part payment. SAWMILL MFG. CO., Kansas City, Mo.

FOR SALE, WANTS, Etc.

32 Sheepshire sheep for sale. C. A. WILLEY, Yo. der, Kan.

J. KIRBY CATYCLE—On account of my age I will sell my A. J. C. G. herd of cows and heifers. First-class cattle of the Simmental and St. Lawrence strains. Purchaser to Lambeth bull at the head of herd. Address S. S. MATTHEWS, Box 116, Leavenworth, Kan.

FOR SALE—Five young full-blood Holstein-Friesian bulls, from three to 18 months old. Offered at prices that farmers can pay. Also a few choice cows and heifers thoroughbred. This is a good opportunity to get good animals at reasonable cost. Write for particulars to J. GAMBLE, Elyria, Kan.

FOR SALE—Young Holstein-Friesian bulls, good individuals, choice breeding. Also a three-year-old bull that I am done using; can be imported. Prices reasonable; cash or note; time to suit purchaser. M. H. ALBERTY, Cherokee, Kan.

FOR SALE—Eggs from first-class Light Brahmas, \$1 per setting or \$1.50 for 10 eggs, and a few fine pullets yet at \$1. MRS. N. VAN BUNKER, Blue Mound, Kan.

500,000 SWEET POTATO PLANTS—To sell during May and June, 1892. Nine best kinds. Inquire of H. H. PILEY, Wayne, Mo.

Eggs—Choice Light Brahmas, \$1 per dozen; \$1.50 per dozen. Wm. PLUMMER, Omaha City, Kan.

FOR SALE CHEAP ON EASY TERMS—One of the newest located and best improved farms in eastern Kansas. Also a full section under cultivation. For particulars and terms address the owner, G. H. PRATE, Humboldt, Kan.

WANTED—Homes or cattle in exchange for farm lands. Desirable homes cheap. GERALD PIERCE, Bismarck, N. D.

FOR SALE—Improved farm of 200 acres near Charlotsville, Va., 2½ miles from depot. Only \$4,000; one-quarter cash, balance to suit. Splendid location for pedigree stock, dairy, or fruit farm. Would take half payment in young breeding stock. Address GREGORY McCARTHY, N. C. Experiment Station, Raleigh, N. C.

FOR SALE OR RENT—To responsible parties only a few choice quarter or half-section farms in one of the best portions of the celebrated Valley of the Red River of the North. Terms cash or crop payment. For particulars address W. HINCKLE SMITH, Ameila, Cass County, N. D.

PERCHERON HORSES—Having sold my farm I will sell at less than the cost of importing them 12 of the very finest three to five-year-old imported Percheron mares, all in top form for service. Must be sold at once. C. V. HOLDER, Bloomington, Ill.

FOR SALE—Registered Victoria Shorthorn Bull. LLOYD E. JONES, Galva, Ill.

WANTED—An American man of experience to feed and care for 50 cows. Address, stating experience, wages required, whether married or single. BOX 27, Fayville, Mass.

I HAVE LEFT UN-SOLD ten (10) high grade ewes, 1 Cotswold, with lambs by their sides. Ewes will weigh from 100 to 140 pounds each; lambs from 20 to 40 pounds. I will sell the lot for \$70, delivered on board of cars at station. The first check takes the lot or any part of them; \$7 for ewe and lamb, all young, two to four years old, and all perfectly healthy and in good store condition. Address all letters to H. A. WHITCOMB, Wilkinsville, Mass.

FOR SALE—Two very good farms 22 and 14 acres, respectively. Excellent crops and buildings. Price \$4,000 and \$1,500. Address Dr. JOHN F. HILLIGEAS, Fannington, Montgomery Co., Pa.

FOR SALE—A good farm and mill site in Spotsylvania County, Va., including 300 acres of choice pine, oak, poplar, and other timber. Exceptional opportunity for enterprising party with some capital. For full description and plan of property address H. C. WOODMAN, Box 277, Boston, Mass.

WANTED—A PARTNER with capital enough to buy wheat and sell flour for a 25-bbl. roller mill. I will give a good chance, and take small profit for grinding. It will pay to write me at once. V. B. FERR, Laurel Hill, Va.

WANTED TO SELL a half-interest in a 25-bbl. roller mill doing a first-class business in one of the best local milling sections in Pennsylvania. Has power for a 100-bbl. mill, thus having a large prospective value for a man who wishes to make a permanent investment. L. care of The Boller Mill, Buffalo, N. Y.

ENGINE WANTED, with boiler, 25 or 30 horse power, semi-portable style. Would be glad to buy a second-hand engine of this sort. HITCHCOOK HANLEY, Hermonville, N. Y.

FOR SALE—The best 50-bbl. flour mill and in the best location in northwestern Ohio, including one acre of land and good dwelling house. Situated in the center of the thriving young city of North Baltimore, Wood Co., O., in the gas and oil belt. Gas for the steam plant \$12 per month. Mill is kept busy on home trade. Will correspond with those who mean business only. G. G. BUCKWELL, care Boller Mill, Buffalo, N. Y.

MARES WANTED in exchange for Hereford cattle. Do not write unless you mean business. GOSGROVE LIVE-STOCK CO., Le Sueur, Minn.

IMPROVED FARMS and Timber Lands for sale in the Evergreen State of Washington. Apply to ALEX. DRYSDALE, Olympia, Wash.

TO EXCHANGE—Good rental business property in Brady Island, N. Y., to exchange for draft stallions and mares. Property encumbered \$100. G. D. MATHEWS, Brady Island, N. Y.

FOR SALE—Fine Stock Farm. About 110 acres, one mile from Aurora, Ill. Extensive barns (cement floors) and outbuildings. Windmill, scales, fruit and shade trees. Large modern house. No exchange or agent. Apply to D. F. VAN LIEW, Aurora, Ill.

FOR SALE—One of the best country flouring mills in Missouri. Close investigation invited. For capacity, terms, etc., address HILBERT BRO., Creve Coeur, Mo.

FOR SALE, WANTS, Etc.

FOR SALE—A first-class full roller mill. Situated in the best town in northern Iowa, with population over 5,000, and six railroads. Capacity of mill 60 barrels of wheat, four 26 barrels of buckwheat, and one barrel of oats. Latest modern machinery, for both wheat and buckwheat. Mill doing good business now. For further particulars inquire of A. T. PARKER, Mason City, Iowa.

FOR SALE—Two red-poll bulls. Splendidly bred; record. Ready for service. Cash or note, note arrival guaranteed. W. M. DILLON, Sterling, Ill.

WANTED—An up-headed stylish rooster of 1,000 to 1,500 pounds; 14½ to 16 hands; must show a 300 gait. One that is not afraid of anything and does not pull is what I want, and must be worth the price. Address Look Box 214, Willimantic, Conn.

FOR SALE—Red poll bull; three years old; weight 1,500 pounds; extra fine and sure breeder. J. C. STRYKER, Tipton, Ia.

DON'T LOOK AT THIS—On account of the blizzard, day of my sale, very few cattle were sold. I will now sell Short-horn at private sale at bed rock. Cows, heifers, and bulls. G. R. CRUMPACKER, Washington, Ia.

FOR SALE—Murray & Fisher trotting sulky; double axle; weight, 55 pounds; never been wet; foot as new. Will sell very low. Cost \$20. Address E. J. BLACK, Washburn, Ill.

TWO YOUNG SHORT-HORN BULLS—Good ones. One out of nice milkers. Red-and-white and rich red-and-white. Prices, \$75 and \$100. Apply to JOHN W. HILLIS, Delaware, N. M.

WANTED—To exchange one E. Setter bitch; five Scotch collie dogs (thoroughbreds and pedigree); 10 pairs White Pianist pigeons, for poultry, incubator, game-breed foundation, or others. T. ANDREWS, Epiphany, Va.

WANTED—A man to care for stock, bees, and fruit trees, on shares, in the Indian Territory. For further information apply to MR. L. C. AXTELL, Roseville, Ill.

WANTED—A Horn of Plenty tells you all about the country around Norfolk, Va. Send for free sample copies. Address "Cornucopia," 213 Main street, Norfolk, Va.

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